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SECTION 01090

SOURCES FOR REFERENCE PUBLICATIONS

PART 1 GENERAL

1.1 REFERENCES

Reference publications are cited in other sections of the specifications along with identification of their sponsoring organizations. The addresses of the sponsoring organizations are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided.

AGRICULTURAL MARKETING SERVICE (AMS)
Seed Regulatory and Testing Branch
USDA, AMS, LS Div.
Bldg. 506, BARC-East
Soil Conservation Rd.
Beltsville, MD 20705
Ph: 301-504-9430

AMERICAN ASSOCIATION OF NURSERYMEN (AAN)
1250 I St., NW, Suite 500
Washington, DC 20005
Ph: 202-789-2900
FAX: 202-789-1893

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
444 N. Capital St., NW, Suite 249
Washington, DC 20001
Ph: 202-624-5800
Fax: 202-624-5806

AMERICAN CONCRETE INSTITUTE (ACI)
P.O. Box 19150
Detroit, MI 48219-0150
Ph: 313-532-2600
Fax: 313-538-0655

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
11 West 42nd St
New York, NY 10036
Ph: 212-642-4900
Fax: 212-302-1286

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
1916 Race St.
Philadelphia, PA 19103
Ph: 215-299-5585
Fax: 215-977-9679
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
22 Law Dr., Box 2300
Fairfield, NJ 07007-2300
Ph: 800-843-2763
Fax: 201-882-1717

AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE)

P.O. Box 40362
Bay Village, OH 44140
Ph: 216-835-3040
Fax: 216-835-3488

AMERICAN WATER WORKS ASSOCIATION (AWWA)
6666 West Quincy
Denver, CO 80235
Ph: 800-926-7337
Fax: 303-795-1989

AMERICAN WELDING SOCIETY (AWS)
P.O. Box 351040
Miami, FL 33135
Ph: 800-443-9353
Fax: 305-443-7559

CALIFORNIA DEPARTMENT OF TRANSPORTATION (Caltrans)
Publication Distribution Unit
1900 Royal Oaks Dr.
Sacramento, CA 95815
Ph: 916-445-3520
Fax: 916-324-8997

CODE OF FEDERAL REGULATIONS (CFR)
Order from:
Government Printing Office
Washington, DC 20402
Ph: 202-783-3238
Fax: 202-275-7703

COMMERCIAL ITEM DESCRIPTIONS (CID)
Order from:
Standardization Documents Order Desk
Bldg 4D
700 Robbins Av
Philadelphia, PA 19111-5094
Ph: 215-697-2179
Fax: 215-697-2978

CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
933 No. Plum Grove Rd.
Schaumburg, IL 60173-4758
Ph: 708-517-1200
Fax: 708-517-1206

CORPS OF ENGINEERS (COE)
Order from:
U.S. Army Engineer Waterways Experiment Station
ATTN: Technical Report Distribution Section, Services Branch, TIC
3909 Halls Ferry Rd.
Vicksburg, MS 39180-6199
Ph: 601-634-2355
Fax: 601-634-2506

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY(CSDLAC)
1955 Workman Mill Road
Whittier, CA 90601
Ph: 562-699-7411 Ext 1205

ENGINEERING MANUALS (EM)
USACE Publications Depot
Attn: CEIM-SP-D
2803 52nd Avenue
Hyattsville, MD 20781-1102
Ph: 301-436-2063

FEDERAL SPECIFICATIONS (FS)
Order from:
Standardization Documents Order Desk
Bldg 4D
700 Robbins Av
Philadelphia, PA 19111-5094
Ph: 215-697-2179
Fax: 215-697-2978

FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH (FCCHR)
USC
KAP-200 University Park MC-2531
Los Angeles, CA 90089-2531
Ph: 213-740-2032
Fax: 213-740-8399

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
445 Hoes Ln.
Piscataway, NJ 08855-1331
Ph: 800-678-4333
Fax: 908-981-9667

INSTRUMENT SOCIETY OF AMERICA (ISA)
P.O. Box 3561
Durham, NC 27702
Ph: 919-549-8411
Fax: 919-549-8288

INSULATED CABLE ENGINEERS ASSOCIATION (ICEA)
P.O. Box 440
South Yarmouth, MA 02664
Ph: 508-394-4424
Fax: 508-394-1194
Order From:
American National Standards Institute
Customer Service Dept.
1430 Broadway
New York, NY 10018
Ph: 212-642-4900
Fax: 212-302-1286

MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY (MSS)
127 Park St., NE
Vienna, VA 22180
Ph: 203-281-6613

NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (NAAMM)
11 So. LaSalle St., Suite 1400
Chicago, IL 60603
Ph: 312-201-0101
FAX: 312-201-0214

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
2101 L St., NW, Suite 300
Washington, DC 20037-1526
Ph: 202-457-8474
Fax: 202-457-8473

NATIONAL BUREAU OF STANDARDS(NBS)

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
P.O. Box 9146
Quincy, MA 02269
Ph: 800-344-3555
Fax: 617-984-7057

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)
Publications and Programs Inquiries
Room E128, Administration Building
Gaithersburg, MD 20899
Ph: 301-975-3058
Order From:
Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402
Ph: 202-783-3238

PUBLIC WORKS STANDARDS, INC.
“Greenbook”
c/o Associated General Contractors of California
1255 Corporated Center Drive, Suite 100
Monterey Park, CA 91754
Order “Greenbook” From:
BUILDING NEWS
Division of BNI Publications, Inc.
1612 South Clementine Street
Anaheim, CA 92802
Ph (714)517-0970 (800)878-6397

UNDERWRITERS LABORATORIES (UL)
333 Pfingsten Rd.
Northbrook, IL 60062
Ph: 708-272-8800, ext 42612
Fax: 708-272-8129

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

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ATTACHMENTS - STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
- STANDARD PLANS OF THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
- STANDARD DRAWINGS FOR CONSTRUCTION OF THE COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

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SECTION 01200

GENERAL REQUIREMENTS

1. REFERENCES. The publications and standard specifications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

The standard plans listed below form a part of this specification. References made in the standard plans are contained in the appropriate Sections of the corresponding Standard Specifications or in the other standard plans listed below.

1.1 Federal Specifications (FS).

FS FF-B-575	(Rev C) Bolts, Hexagon and Square
FS FF-N-105	(Rev B; Int Am 4) Nails, Brads, Staples and Spikes: Wire, Cut and Wrought
FS FF-N-836	(Rev D; Am 2) Nut, Square, Hexagon, Cap, Slotted, Castle, Knurled, Welding and Single Ball Seat
FS MM-L-751	(Rev H) Lumber; Softwood
FS TT-E-529	(Rev G) Enamel, Alkyd, Semi-Gloss
FS TT-P-25	(Rev E; Am 2) Primer Coating, Exterior (Undercoat for Wood, Ready-Mixed, White and Tints)

1.2 National Institute of Standards and Technology (NIST).

NIST PS 1	(1983) Construction and Industrial Plywood

1.3 Standard Plans for Public Works Construction(“SPPWC”)(1997 Edition) - Included at the end of this section.

110-1	Driveway Approaches
120-1	Curb and Gutter - Barrier
200-2	Precast Concrete Sewer Manhole
203-0	Brick Sewer Manhole
205-1	Sewer Manhole Adjustment
210-2	610mm(24")Manhole Frame and Cover Locking Type
320-1	Manhole Pipe to Pipe Main Line ID=900mm(36") or Larger
322-1	Manhole Pipe to Pipe (Large Side Inlet)
324-1	Manhole Shaft with Eccentric Reducer

326-1	Manhole Shaft 90mm(36") Without Reducer
328-1	Pressure Manhole Shaft With Eccentric Reducer
329-1	Pressure Manhole Shaft and Pressure Plate Detail 914mm(36") Without Reducer
351-1	CSP Flared Inlet
361-0	Trash Rack(Inclined)
380-2	Concrete Collar
600-1	Chain Link Fence and Gates
606-1	Metal Railing
617-1	Reinforced Concrete Retaing Wall Details
618-1	Masonry Retaining Wall
622-1	Concrete Block Slough Wall
630-2	610 mm(24") Manhole Frame and Cover
633-3	914 mm(36") Manhole Frame and Cover
635-2	Steel Step
636-1	Polypropylene Plastic Step
640-1	Reinforced Concrete Stairway

1.4 Standard Plans of the State of California Department of Transportation (“Caltrans SP”)(July 1992 Edition) - Included at the end of this section.

A73A	Markers
A73B	Markers

1.5 Standard Drawings for Construction of the County Sanitation Districts of Los Angeles County(December 1994) - Included at the end of this section.

S-a-202	Standard Manhole, Type “B”
S-a-209	Standard Manhole Step
S-a-226	Standard 36" Manhole Frame With 30" Cover

1.6 Standard Specifications for Public Works Construction by Public Works Standards, Inc. (“SSPWC” or “Green Book”)(1997 Edition including 1998 Supplement).

Applicable sections referenced to in the “SPPWC” Standard Plans and project specifications.

1.7 Standard Specifications of the State of California Department of Transportation(“Caltrans SS”)(July 1992 Edition).

Applicable sections referenced to in the Caltrans Standard Plans and project specifications.

1.8 Amendments to the Standard Specifications for Public Works Construction, 1994 Edition, of the County Sanitation Districts of Los Angeles County.

2. PROJECT FACILITIES. The Contractor shall construct and/or erect the following project facilities:

2.1 Construction Signs. The signs shall be erected as soon as possible and within 15 days after commencement of work under this contract.

2.1.1 Five Project Signs at locations designated by the Contracting Officer.

2.1.2 Warning Signs facing approaching traffic on all roads crossing under overhead power transmission lines.

2.1.3 Six hard hat signs at locations directed.

2.2 Project Engineer's Office, including a fenced parking area.

2.3 Bulletin Board at the Contractor's office. Immediately upon beginning of work, the Contractor shall provide a weatherproof glass-covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and other information approved by the Contracting Officer. The bulletin board shall be located at the project site in a conspicuous place easily accessible to all employees, as approved by the Contracting Officer. Legible copies of the aforementioned data shall be displayed until work is completed. Upon completion of work the bulletin board shall be removed by and remain the property of the Contractor.

2.4 Sanitary Facilities. The Contractor shall provide and maintain within the construction area minimum field-type sanitary facilities approved by the Contracting Officer.

3. CONSTRUCTION SIGNS.

3.1 Materials.

3.1.1 Lumber shall conform to FS MM-L-751, and shall be seasoned Douglas Fir, S4S, Grade D or better except that posts, braces and spacers shall be construction Grade (WCLB).

3.1.2 Plywood shall conform to NIST PS 1, grade A-C, Group 1, exterior type.

3.1.3 Bolts, Nuts and Nails. Bolts shall conform to FS FF-B-575, nuts shall conform to FS FF-N-836, and nails shall conform to FS FF-N-105.

3.1.4 Paints and Oils. Paints shall conform to FS TT-P-25 for primer and FS TT-E-529 for finish paint and lettering.

3.2 Construction.

3.2.1 Project and hard hat signs shall be constructed. Decals and safety signs will be furnished by the Contracting Officer.

3.2.2 Warning Signs shall be constructed of plywood not less than ½ inch thick and shall be securely bolted to the supports with the bottom of the sign face 3 feet above the ground. The sign face shall be 2 x 4 feet, all letters shall be 4 inches in height, and the wording shall be: "WARNING: OVERHEAD TRANSMISSION LINES."

3.3 Painting. All exposed surfaces and edges of plywood shall be given one coat of linseed oil and be wiped prior to applying primer. All exposed surfaces of signs and supports shall be given one coat of primer and 2 finish coats of white paint. Except as otherwise indicated, lettering on all signs shall be black and sized as indicated.

4. PROJECT ENGINEER'S OFFICES. No later than 30 days after issuance of notice to proceed, the Contractor shall provide office facilities for the project engineer as specified in 4.1 below. The proposed floor plan shall be submitted and approved by the Contracting Officer prior to delivery. The trailer shall be delivered to 5525 East Imperial Highway, South Gate, CA and shall be placed in a location designated by the Contracting Officer.

4.1 Office Trailer (24 x 60). The Contractor shall provide a new 24' x 60' office trailer. The trailer shall be installed with appropriate hold-downs and finished with appropriate skirting around the perimeter of the trailer. The Contractor shall provide a covered deck, 8 feet wide, along the entire entrance side of the trailer. The deck shall include appropriate railing, stairs and handicapped ramp. The trailer shall be adequately heated, well lighted, suitably ventilated, and cooled with a properly sized air conditioning unit. An adequate supply of cooled drinking water shall be supplied and maintained. Sewer, permanent water supply, telephone, and electrical service shall be provided and maintained. The cost for sewer, water, and telephone usage will be the responsibility of the Government. It is estimated that the trailer will require a 200 amp, 120/240 V single phase service. However, the Contractor shall verify all utility requirements as the Government does not guarantee the accuracy of these power requirements or any existing sources. The trailer shall have two 5' x 6' bathrooms consisting of a water closet, sink and related items. The Contractor shall provide commercial grade furniture for the project engineer’s office, consisting of two desks, two desk chairs, two 3' x 6' tables, a conference table with eight chairs, two each four drawer filing cabinets, two book shelves, one copy machine and one plain paper FAX machine. Items shall be maintained by the Contractor. At the conclusion of the performance period of this contract, the trailer and the furniture items described herein, shall become the property of the Government, and the Contractor’s responsibilities for maintenance of the trailer as described above will cease.

4.2 Cleaning and Janitorial Services-The Contractor shall provide cleaning and janitorial services for the new trailer and also for the existing trailer located in the South Imperial Yard(also 48'x60') for the duration of the contract. Service shall be provided three times a week and all cleaning and janitorial materials(including paper towels, toilet paper and hand soap) shall be provided by the Contractor. Trash service shall also be provided(3 cy trash dumpster with weekly pick-ups).

4.3 The Contractor shall provide fencing around the Project Engineer's Office as directed by the Contracting Officer. Fencing shall be a woven wire fence approximately 6 feet high with a 10-foot wide lockable gate accessible from a road or street. The fenced area shall be of sufficient size to permit ease in the parking of vehicles and a 10 foot clearance around the structure.

5. MAINTENANCE OF PROJECT FACILITIES.

5.1 General. The Contractor shall maintain the project facilities in good condition throughout the life of the project. Upon completion of work under this contract, the contractor-furnished facilities covered under this section will remain the property of the Contractor and shall be removed from the site at his expense.

6. SCRAP MATERIAL. Materials indicated to be removed and not indicated to be salvaged, stored or reinstalled are designated as scrap and shall become the property of the Contractor and be removed from the site of work. The Contractor by signing this contract hereby acknowledges that he made due allowance for value, if any, of such scrap in the contract price.

7. SALVAGE MATERIALS. All materials removed and indicated to be either stored or reinstalled are designated as salvaged materials. Any salvaged materials which are excess upon completion of the work and are not indicated to be stored shall become the property of the Contractor.

8. ARCHAEOLOGICAL FINDINGS DURING CONSTRUCTION. Should the Contractor or any of his employees in the performance of this contract find or uncover any archaeological remains, he shall notify the Project Engineer immediately. Such notifications will be a brief statement in writing giving the location and nature of the findings. Should the discovery site require archaeological studies resulting in delays and/or additional work, the Contractor will be compensated by an equitable adjustment under the CONTRACT CLAUSES of the contract.

9. PUBLIC UTILITIES, NOTICES, AND RESTRICTIONS.

9.1 General. The approximate location of all railroads, pipe lines, power and communication lines, and other utilities known to exist within the limits of the work are indicated on the drawings. The sizes, locations, and names of owners of such utilities are given from available information, but their accuracy is not guaranteed. Except as otherwise indicated on the drawings, all existing utilities will be left in place and the Contractor shall conduct his operations in such a manner that the utilities will be protected from damage at all times, or arrangements shall be made by the Contractor for their relocation at the Contractor's own expense. The Contractor shall be responsible for any damage to utilities known to exist and shall reimburse the owner for such damage caused by his operations.

9.2 Relocation or Removal. Utilities to be relocated or removed not as part of this contract are designated "To be Relocated by Others" or "To be Removed by Others," respectively. Utilities shown on the plans and not so designated will be left in place and be subject to the clause of the contract: PROTECTION OF EXISTING VEGETATION, STRUCTURES, UTILITIES, AND IMPROVEMENTS of the CONTRACT CLAUSES. The Contractor may make arrangements with the owner for the temporary relocation and restoration of utilities not designated to be relocated, or for additional work in excess of the work needed to relocate utilities designated for relocation at no additional cost to the Government.

9.3 Utilities Not Shown. If the Contractor encounters, within the construction limits of the entire project, utilities not shown on the plans and not visible as of the date of this contract and if such utilities will interfere with construction operations, he shall immediately notify the Contracting Officer in writing to enable a determination by the Contracting Officer as to the necessity for removal or relocation. If such utilities are left in place, removed or relocated, as directed by the Contracting Officer, the Contractor shall be entitled to an equitable adjustment for any additional work or delay.

9.4 Coordination.

9.4.1 Utilities. The Contractor shall consult and cooperate with the owner of utilities that are to be relocated or removed by others to establish a mutual performance schedule and to enable coordination of such work with the construction work. These consultations shall be held as soon as possible after award of the contract or sufficiently in advance of anticipated interference with construction operations to provide required time for the removal or relocation of affected utilities.

9.4.2 Concurrent Construction. Contractor's attention is directed to the following future Government and private projects that are located within the Rio Hondo Channel right of way and are scheduled to be constructed concurrently with this contract:

Project	Proposed Construction Schedule
1) Pier Nose Extensions at Whittier Blvd and at Telegraph Ave. Bridges.	May 1999 to Sept 1999
2) Pier Modifications at Firestone Blvd, SPRR(N)(N/O Telegraph Rd, SPRR(S)(N/O Firestone Blvd) and Splash Guards at Suva St.	June 1999 to Sept 1999
3) Removal of Ex.Pedestrian Bridge at Sta 129+00 and Construction of New Ped. Bridge at Approx. Sta 100+00 (North of UPRR(S)).	June 1999 to Sept 1999
4) Relocation of 10" Waterline on Ex. Pedestrian Bridge at Sta 129+00.	Start: June 1999
5) Widening of UPRR Bridge(downstream of Whittier Blvd)	May 1999 to Sept 2000
6) Raising of B.N.&.S.F.C. RR Bridge at Sta 268+26.	Start: June 1999
7) Construction of Trunk Sewer in the Left Levee from Just D/S of I-5 U/S to Just U/S of Washington Blvd.	Start: June 1999

Contractor shall allow the contractor of each of the above projects joint-use of the channel right of way to gain vehicular and equipment access to its project site(s). The Contractor shall coordinate his activities with each of the contractors to allow for the timely completion of all the projects.

9.5 Notices.

9.5.1 Utilities To be Relocated or Protected. Unless otherwise specified, the Contractor shall notify the Contracting Officer, in writing, 30 calendar days prior to starting work on any utility to be protected. On each protection, notification shall include dates on which the Contractor plans excavation, and construction work, as applicable. The Contractor shall also notify the following representatives of utility owners not less than 14 days, unless otherwise specified, prior to start of work in the vicinity of their respective utilities:

Arco Pipe Line Co.

Mr. Robert Streed
Telephone: (310) 428-9483

County Sanitation District of Los Angeles County
Mr. John Redner
Telephone: (213) 774-7272

General Telephone Company
Mr. Stephen Deck
Telephone: (714) 375-6706

Southern California Gas Company
ML 8286 Box 3249
Los Angeles, CA 90051-1249
Mr. Larry Jacquez
Telephone: (213) 689-4169 (Mon-Fri)
(213) 881-8113 (Sat/Emergency)

Central Basin Municipal Water District(Reclaimed Water)
17140 South Avalon Boulevard
Carson, CA 90746

City of Downey
Water and Sanitation Division
Mr. Gary Stewart, Assistant Superintendent of Water
(562)904-7202

Southern California Edison Company (Distribution)
500 N. State College
Suite 750
Orange, CA 92668
Mr. Mark Meizner
Telephone: (714) 939-4736 (Mon-Fri)
(714) 646-2914 (Sat/Emergency)

Southern California Edison Company (Transmission)
Mr. Wally Zimmerman
Telephone (310) 608-5131

Metropolitian Fiber Systems
R. Wilson
(714)289-0085

Mobil Oil Corporation
Teri A. Shinde
(310)212-1794

Pacific Bell
3939 E. Coronado
Anaheim, CA 92807
Mr. Ian Mac Innes
Telephone: (714) 666-5715

Pacific Energy Resources
Mr. David Dalmann
Telephone: (310) 436-6566

Sprint
Mr. Jack R. Fry

(714)781-7053

Texaco Trading and Transportation, Inc.
Mr. Roger Ang
Telephone: (805) 328-2338

Tosco Distribution Company
(562)906-7558

9.5.2 Permanent Utility Relocations by Others. Except as otherwise specified, the Contractor shall notify the Contracting Officer, in writing, not less than 14 days in advance of the date on which he will complete trenching, excavation, fill or rough grading, as applicable, at each location where such completed work is required for temporary or permanent relocations by others. The Contractor shall allow a period of 14 calendar days at each relocation, after which time the Contractor may resume his operations.

9.5.3 Unocal. The Contractor shall notify the Unocal at least forty-eight (48) hours prior to any work in the vicinity of UNOCAL facilities. The P.O.C's are Mr. V. Hayes, Energy Resources (310) 946-6242 and Mr. Todd Dvorak, Pipeline Division (310) 538-7711.

9.5.4 The Contractor shall notify Mr. Ken McGuire of the Los Angeles County Department of Public Works 14 days prior to start of construction to post notification for the homeless to remove their personal belongings out of the project area; telephone (310)861-0316.

9.5.5 Police, Highway Patrol, and Fire Department. Police, Highway Patrol, and Fire Department shall be notified by the Contractor whenever a street is to be closed to traffic. If the closing is to be of long duration, a single notification to each department on the last working day before closing will be sufficient. A single notification shall then be made at the time the street is again opened to traffic. If the closing is to be of short duration or if different sections of the streets are to be closed at different times, notifications shall be made on a day-to-day basis.

9.5.6 Existing Bench Marks and R/W Markers. The Contractor shall notify the Contracting Officer, in writing, 7 days in advance of the time he proposes to remove any bench mark or right-of-way marker.

9.5.7 Spill Reporting. The Contractor shall notify the Contracting Officer immediately after all spills, regardless of quantity, including all personnel exposures. The Contractor shall submit a written notification not later than 7 calendar days after the initial notification. The written notification shall include the following:

a. Item spilled, leaked or released in an unauthorized manner (Identification, Quantity and Manifest Numbers)

b. Whether the amount spilled, leaked or released in an unauthorized manner is EPA reportable and, if reported, a copy of the report.

c. Exact location of the spill, leak or unauthorized release.

d. Nature of exposure to personnel.

e. Containment procedures initiated.

f. Anticipated cleanup and disposal procedures.

g. Disposal location of spill, leak or unauthorized release residue.

9.6 Restrictions.

9.6.1 Representatives of Other Agencies. Personnel representing owners and agencies may be present for various portions of the work. However, the Contractor will be responsible only to the Contracting Officer.

9.6.2 The Contractor will not be permitted to cross existing paved roadways and residential roadways with construction equipment except at approved marked crossings. The Contractor shall maintain the crossings in accordance with applicable state, county, and city regulations.

9.6.3 Working Hours. The Contractor shall restrict all construction activities, including warming equipment, to the following schedule:

Monday through Friday	7 a.m. to 7:00 p.m.
Saturday	9 a.m. to 6:00 p.m.

Access to the job site will be allowed 30 minutes prior to starting time unless otherwise approved by the Contracting Officer. No work will be permitted on Sundays or Federal Holidays.

9.6.4 Bicycle Trail and Equestrian Trail Closures and Detours.

9.6.4.1 Closures and Detours. The bicyle trail and equestrian trail(where it is aligned on the top of the levee or is aligned along the backside of the levee) shall be closed during any construction in the portions of the channel levees and rights of way where a bicycle trail and/or equestrian trail exists. Contractor shall secure all trail openings in the channel right of way fencing to prevent use of the trails during construction. All other openings in the fence , except those accommodating DPW gates, shall also be secured by the Contractor. The trail openings and all the other openings shall be secured in a manner that is at least equivalent to the existing to prevent unauthorized access into the construction area. Signage with the limits, date and time of closure shall be posted along the trails in both directions two (2) weeks prior to the actual closing of the trails. Signage shall contain the period and extent of closure. The Contractor shall notify Greg Jaquez, Los Angeles County Department of Public Works(DPW) Bikeways Coordinator (626) 458-3941 and Jim Parks of the Los Angeles County Department of Parks and Recreation(DPR) (213) 738-2965, at least one (1) month prior to bicycle trail and equestrian trail closures and immediately after the signs have been placed. The bike trail and equestrian trail shall be adequately barricaded at each end of the project construction limits and at all existing trail openings.

9.6.5 Levee and Parapet Wall Construction. The contractor will be allowed to do any work on the landward side or the top of the levee during the flood season, November 15 to April 15, provided that the work does not effectively remove any more than the top one foot of the levee. This limitation will not impact the construction of the levee in the fill areas. In the fill areas only 2 feet of the concrete side slope will be removed and therefore approximately 1 foot of vertical drop in levee height is required to extend the concrete side slope to the proposed elevation. However, the excavation for the footing of the parapet wall will require approximately 6 feet of the concrete channel slope to be removed. This equates to approximately 3 feet vertically. Therefore, the contractor is restricted from building the parapet walls during the November 15 to April 15 rainy season unless the contractor can demonstrate, to the satisfaction of the Contracting Officer, that the parapet wall can be constructed by removing only a two foot portion of the concrete channel slope and reducing the effective levee height by 1 foot.

9.6.6 Special Considerations.

9.6.6.1 Construction Headings. Due to the magnitude of the project and the short contract duration, two construction headings are required: one for the reach between Firestone Boulevard and the Santa Ana Freeway and the second one for the reach between the Santa Ana Freeway and Whittier Narrows Dam. Additional contractor supervisory personnel are also required. See SECTION 01451: CONTRACTOR QUALITY CONTROL.

9.6.6.2 Installation of irrigation main lines:

a. North of Whittier Blvd - left levee: installation shall start no earlier than 1 May.

b. South of Whittier Blvd - right levee: installation shall start no earlier than 1 July.

c. South of Whittier Blvd - left levee: installation shall start no earlier than 1 August.

9.6.6.3 Seed for hydroseeding shall be sown from October 1st to March 1st. See Section 02935A, paragraph 3.1.1.

10. PUBLIC SAFETY. Attention is directed to the CONTRACT CLAUSE: PERMITS AND RESPONSIBILITIES. The Contractor shall furnish, install, maintain and remove temporary fencing, barricades, and/or guards, as required, to provide protection in the interest of public safety and in conformance with applicable Federal, State, and local laws and ordinances. As a minimum, this will include an 8-foot chain-link fence which completely encloses each and every part of the project which the Contractor worked in or is working on. The plan of this temporary fencing shall be furnished to the Contracting Officer for approval and the fence erected prior to commencement of any work. Whenever the Contractor's operations create a condition hazardous to the public, he shall furnish at his own expense and without cost to the Government, such flagmen and guards as are necessary to give adequate warning to the public of any dangerous conditions to be encountered and he shall furnish, erect, or maintain such fences, barricades, lights, signs and other devices as are necessary to prevent accidents and avoid damage or injury to the public. Flagmen and guards, while on duty and assigned to give warning and safety devices, shall conform to applicable city, county, and state requirements. Should the Contractor appear to be neglectful or negligent in furnishing adequate warning and protection measures, the Contracting Officer may direct attention to the existence of a hazard and the necessary warning and protective measures shall be furnished and installed by the Contractor without additional cost to the Government. Should the Contracting Officer point out the inadequacy of warning and protective measures, such action of the Contracting Officer shall not relieve the Contractor from any responsibility for public safety or abrogate his obligation to furnish and pay for those devices. The installation of any general illumination shall not relieve the Contractor of his responsibility for furnishing and maintaining any protective facility.

11. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) STANDARDS. The OCCUPATIONAL SAFETY and HEALTH ACT (OSHA) STANDARDS for CONSTRUCTION (Title 29, Code of Federal Regulations Part 1926 as revised from time to time) and the Corps of Engineers General Safety and Health Requirements Manual, EM 385-1-1, are both applicable to this contract. The most stringent requirement of the two standards will be applicable.

11.1 Accident Reporting. In accordance with EM 385-1-1, the Contractor shall submit a written summary of worker's compensation claims which have been filed by worker's in connection with work on the project. The summary shall be submitted

at the time when the work is approximately 50 percent complete and at project completion. The summary shall include all subcontractors. The Contractor's and subcontractor's compensation insurance carrier shall certify that the summaries are "correct and true".

12. PERMITS.

12.1 General. Reference is made to the clause of the contract entitled "Permits and Responsibilities," which obligates the Contractor to obtain all required licenses and permits, including, but not necessarily limited to the following specified hereinbelow.

12.1.1 National Pollutant Discharge Elimination System (NPDES) Permit. The project requires an NPDES permit from the California State Water Resources Control Board, Division of Water Quality. The general permit requires development and implementation of Storm Water Pollution Prevention Plan (SWPPP), which shall be maintained on-site throughout the construction period. A copy of a plan will be furnished to the Contractor by the Government. The Contractor shall maintain a current copy of the plan on-site, and shall comply with all provisions of the plan. Modifications to the plan as necessary to reflect Contractor’s construction methods shall be submitted by the Contractor to the Government for approval.

13. REQUIRED INSURANCE. Contractor shall maintain insurance in full force and effect throughout the term of this contract. The policy or policies of insurance maintained by Contractor shall provide the limits and coverages as set forth herein below.

13.1 Insurance shall be in force the first day of the term of this contract.

13.2 Each insurance policy required by this Contract shall contain the following clauses:

a. "This insurance shall not be canceled, limited in scope of coverage or nonrenewed until after thirty (30) days written notice has been given to Los Angeles County, Department of Public Works, 900 S. Fremont Avenue, P.O. Box 1460, Alhambra, CA 91802.

b. "All rights of subrogation are hereby waived against the County of Los Angeles, and the members of the Board of Supervisors and elective or appointive officers or employees, when acting within the scope of their employment or appointment, and County Districts and their Board or Commissions which are governed by the County Board of Supervisors."

c. "As respects operation of the named insured performed on behalf of the Government, the following are added as additional insureds:

The County of Los Angeles, the City of Bell Gardens, City of Commerce, City of Downey, City of Montebello, City of Pico Rivera and City of South Gate.

LIABILITY INSURANCE

Coverage	Minimum Limits
Comprehensive General Liability including Completed Operations, Broad Form Property Damage Endorsement, and Comprehensive Automobile Liability	$1,000,000.00 combined single limit per occurrence.
Worker's Compensation	Statutory

13.3 Worker's Compensation. Each liability and worker's compensation insurance policy required by this contract shall contain clause numbers 13.2 (a.) and (c.) above, and the following clause:

> "It is agreed that any insurance maintained by the County of Los Angeles will apply in excess of, and not contribute with, insurance provided by this policy."

13.3.1 The procuring of such required policies of insurance shall not be construed to limit Contractor's liability hereunder not to fulfill the indemnification provisions and requirements of this Contract.

13.3.2 Contractor agrees to indemnify and save harmless agency, its officers, and employees from and against any and all claims, demands, losses, defense costs, or liability of any kind or nature which Agency, its officers, agents and employees may sustain or incur or which may be imposed upon them for injury to or death of persons, or damage to property as a result of, arising out of, or in any manner connected with Contractors performance under the terms of this contract, excepting only liability arising out of the sole negligence of agency.

14. GRAFFITI REMOVAL. The Contractor shall remove or cover all graffiti found in the work area within 48 hours of findings.

15. AS-BUILT DRAWINGS.

15.1 General. The Contractor shall prepare and furnish the as-built drawings for the project. The as-built drawings shall be a record of the construction as installed and completed by the Contractor. They shall include all the information shown on the contract set of drawings and a record of all deviations, modifications, or changes from those drawings, however minor, which were incorporated in the work, all additional work not appearing on the contract drawings, and all changes which are made after final inspection of the contract work. In event the Contractor accomplishes additional work which changes the as-built conditions of the facility after submission of the as-built drawings, the Contractor shall furnish revised and/or additional drawings as required to depict as-built conditions. The requirements for these additional drawings will be the same as for the as-built drawings included in the original submission. The drawings shall show the following information, but not be limited thereto:

(a) The location and description of any utility lines or other installations of any kind or description known to exist within the construction area. The location includes dimensions to permanent features.

(b) The location and dimensions of any changes within the building or structures.

(c) Correct grade or alignment of roads, channels, structures or utilities if any changes were made from contract plans.

(d) Correct elevations if changes were made in site grading.

(e) Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, dimensions of equipment foundations, etc.

(f) The topography and grades of all drainage installed or affected as a part of the project construction.

(g) All changes or modifications which result from the final inspection.

15.2 Preliminary As-Built Drawings. The Contractor shall maintain one (1) set of full size, blueline prints marked up in red to show the as-built conditions. This set of as-built prints shall be kept current and available at the job site at all times. All changes from what is shown on the contract plans, whether it be from changes requested by the Contracting Officer or resulting from additional information which might be uncovered in the course of construction, shall be accurately and neatly recorded as they occur by means of details and notes. The marked-up as-built prints will be jointly inspected for accuracy and completeness by the Contracting Officer and Contractor prior to submission of each monthly pay estimate. Information to be included on these preliminary drawings shall conform to the requirements as stated above. Any and all as-built modifications shall be reflected on all sheets affected by the modifications.

15.2.1 Review Submittal. Not later than 14 calendar days after acceptance of the project by the Government, the Contractor shall deliver to the Contracting Officer one (1) full size set of blueline drawings marked up to depict the as-built conditions. If upon review, the drawings are found to contain errors and/or omissions, they shall be returned to the Contractor for corrections.

15.3 Computer Drawing Files (CADD).

15.3.1 General. The Contractor shall develop the final computer file as-built drawings from the approved preliminary drawings. The computer files shall be delivered in MicroStation file format DGN, a Computer Aided Design and Drafting (CADD) program. Drawings shall be prepared in general accordance with the Los Angeles District manual "Standards Manual for U.S. Army Corps of Engineers Computer-Aided Design and Drafting (CADD) Systems".

15.3.2 Original contract CADD files. The Government will provide all the computerized drawing files, along with a listing and description of the file contents, used to produce plans to advertise this contract on a CD Rom.

15.3.3 Delivery. Prior to finalizing the plans, two sets of drawings shall initially be provided to the Contracting Officer for review and approval. The Contracting Officer shall complete his review within ten (10) working days. Upon final approval, the Contractor shall furnish two (2) full size sets and two (2) half size sets of the final as-built plans on reproducible mylars, and the computerized project files in MicroStation file format DGN on CD ROM. All project files, whether revised or not, shall be provided to the Contracting Officer.

16. NOTICE OF PARTNERSHIP. The Government intends to encourage the foundation of a cohesive partnership with the Contractor and its subcontractors. This partnership will be structured to draw on the strengths of each organization to identify and achieve reciprocal goals. The objectives are effective and efficient contract performance and intended to achieve completion within budget, on schedule, and in accordance with plans and specifications. This partnership would be bilateral in makeup, and participation will be totally voluntary. Any cost associated with effectuating this partnership will be agreed to by both parties and will be shared equally with no change in contract price. To implement this partnership initiative, it is anticipated that within 60 days of Notice to Proceed the Contractor's on-site project manager and the Government's Resident Engineer would attend a one or two day partnership development seminar/team building workshop together with the Contractor's key on-site staff and key Government personnel. Follow-up workshops of 1 to 2 days duration would be held periodically throughout the duration of the contract as agreed to by the Contractor and Government.

17. TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (ER 415-1-15, 31 OCT 89).

17.1 This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance with the Contract Clause entitled: DEFAULT (FIXED PRICE CONSTRUCTION). In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

(a) The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipation for the project location during any given month.

(b) The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.

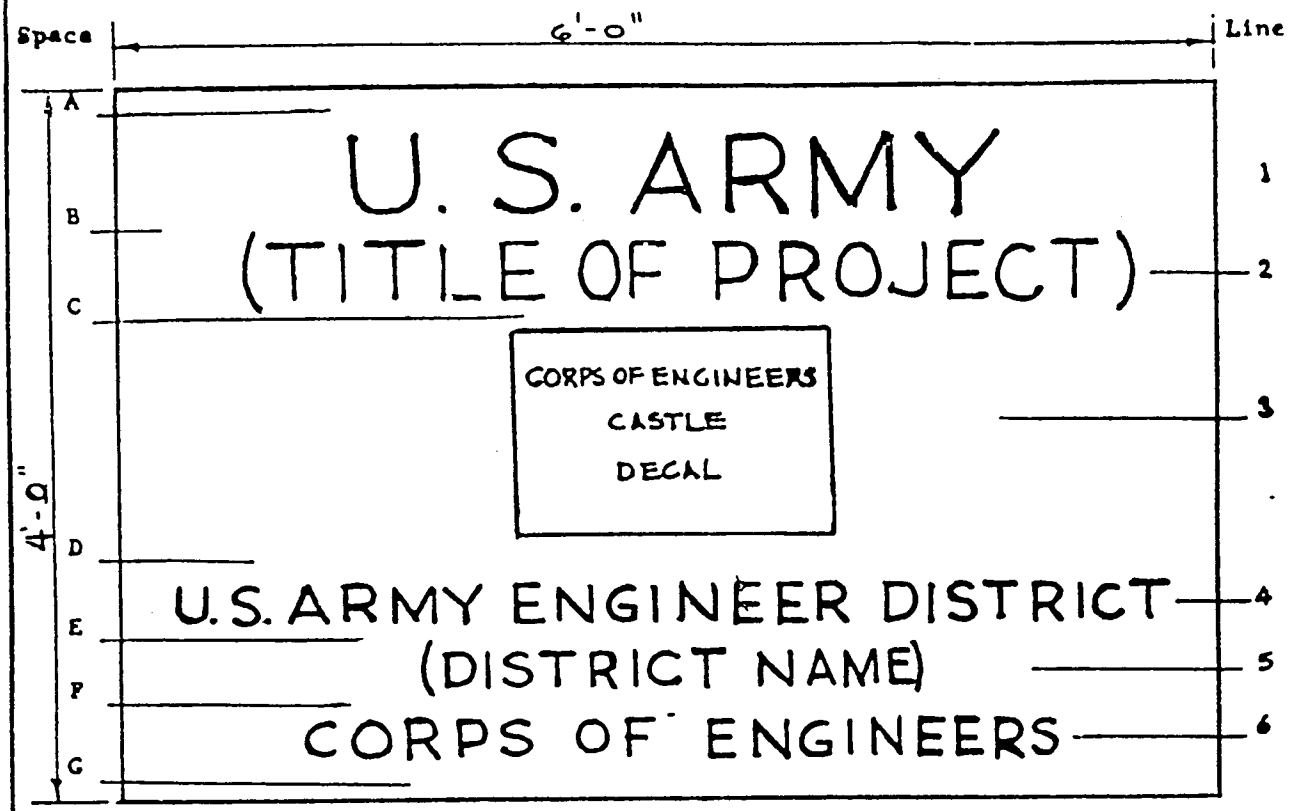
17.2 The following schedule of monthly anticipated adverse weather delays will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY WORK DAYS BASED ON FIVE (5) DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10	10	2	1	0	0	1	1	3	3	5	5

17.3 Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the Contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actually adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled work day. The number of actual adverse weather days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in subparagraph 17.2, ABOVE, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days. and issue a modification in accordance with the Contract Clause entitled: DEFAULT (FIXED PRICE CONSTRUCTION).

End of Section --



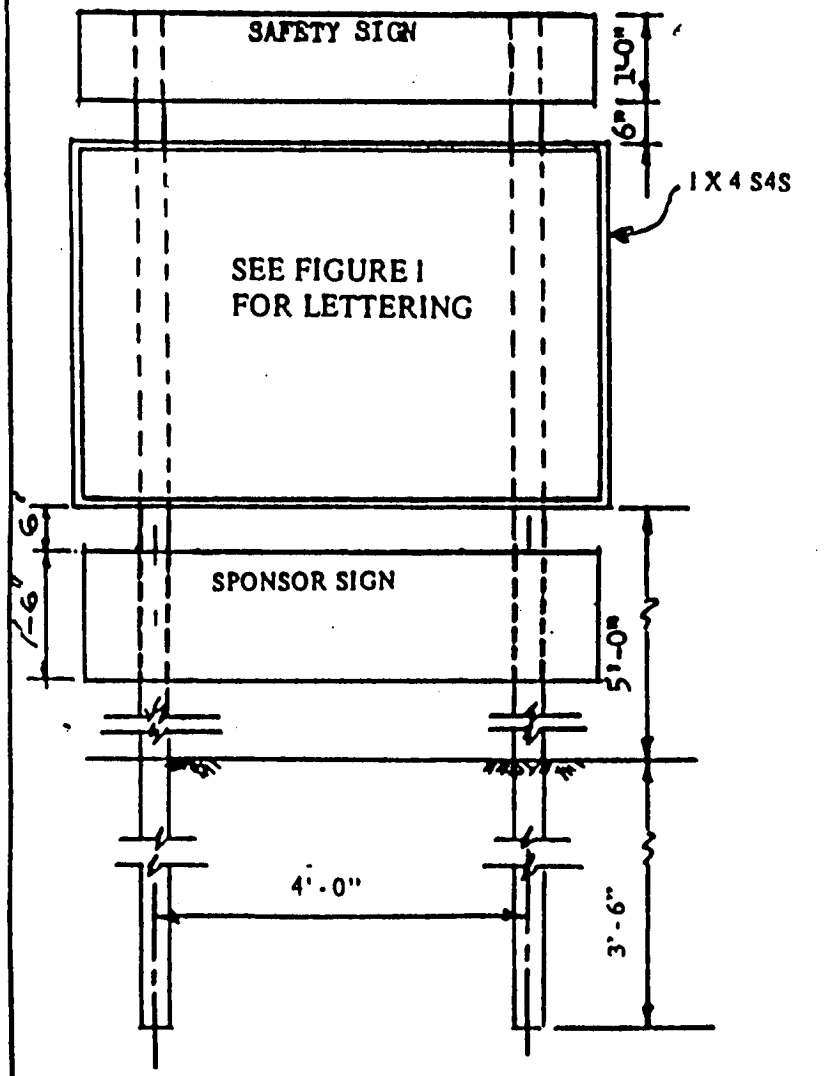
S C H E D U L E

Space	Height	Line	Description	Letter Height	Stroke
A	3"				
		1	U. S. ARMY	5 1/2"	7/8"
B	2"				
		2	PROJECT NOMENCLATURE	4"	5/8"
C	2"				
		3	CORPS OF ENGINEERS CASTLE (DECAL)	14"	--
D	3"				
		4	U. S. ARMY ENGINEER DISTRICT	2 3/4"	3/8"
E	2"				
		5	DISTRICT NAME	2 1/4"	1/4"
F	2"				
		6	CORPS OF ENGINEERS	2 1/2"	3/8"
G	3"				

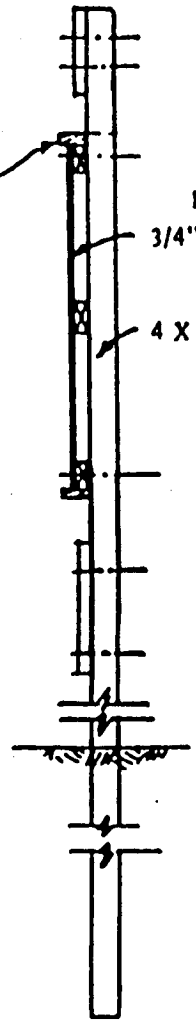
Lettering Color -- Black

PROJECT SIGN
(Army-Civil Works)

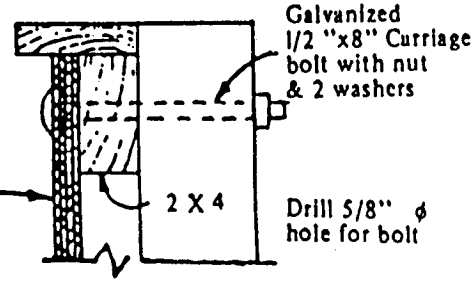
Figure 1
14 August 1972



ELEVATION



SECTION



DETAIL

General Notes

1 - Lumber to be cut & formed accurately.

2 - Secure 1 X 4 and plywood with 6d finish nails at not less than 12" O.C.

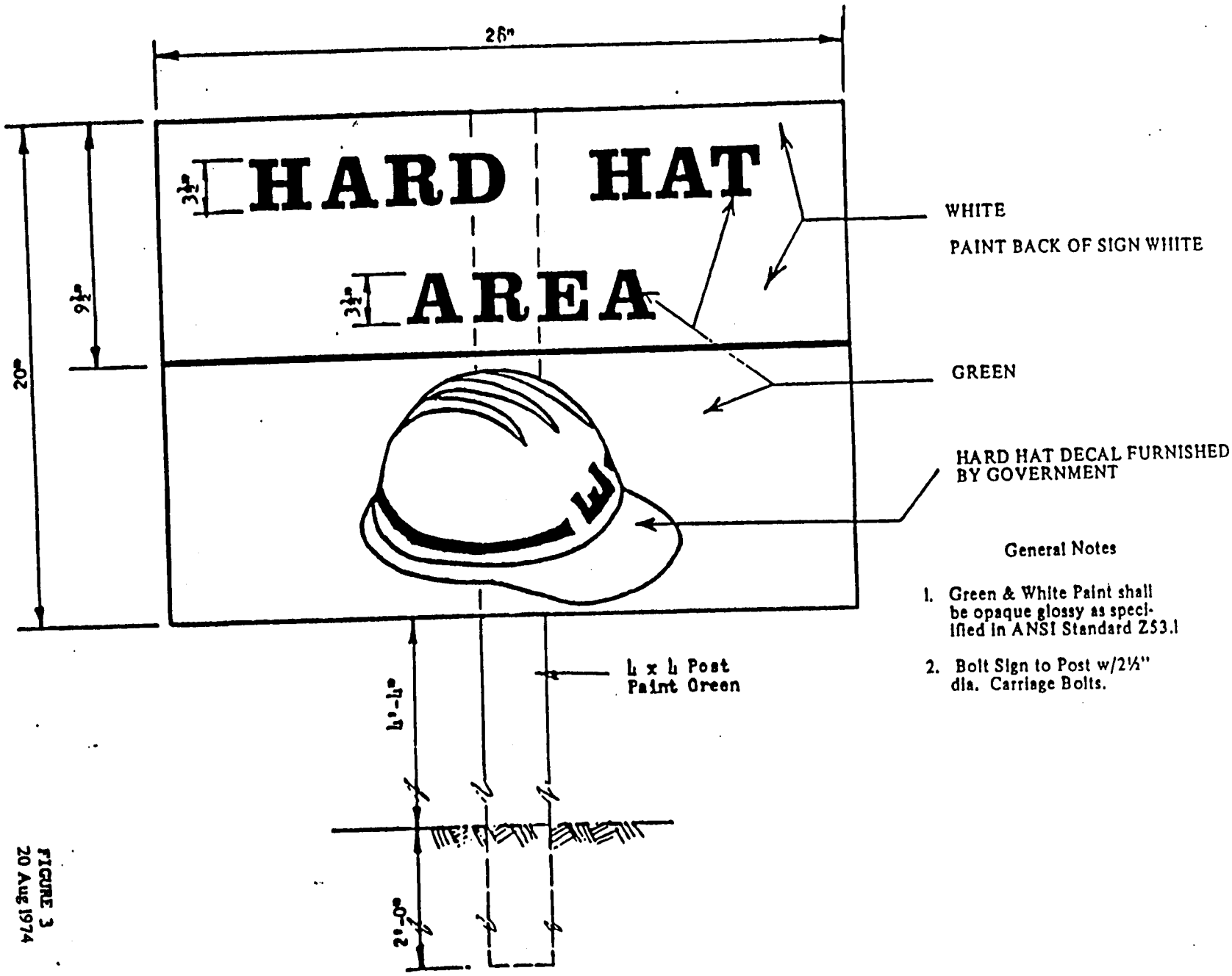
3 - All exposed nails to be set & holes filled with putty.

4 - Sign to be set in good solid ground & backfill carefully tamped into place.

5 - Where necessary, posts shall be braced to provide a solid installation.

SIGN DETAILS

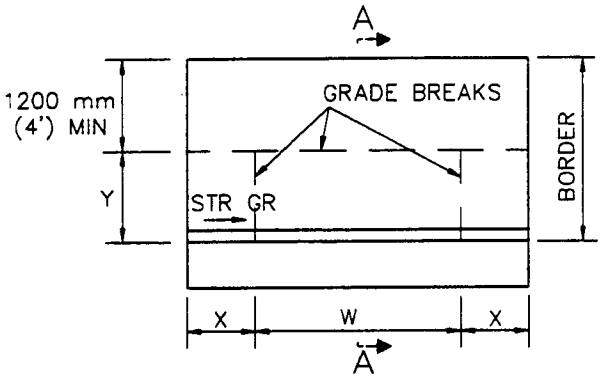
Figure 2
25 February 1975



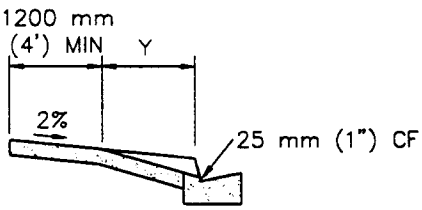
General Notes

1. Green & White Paint shall be opaque glossy as specified in ANSI Standard Z53.1
2. Bolt Sign to Post w/2½" dia. Carriage Bolts.

FIGURE 3
20 Aug 1974

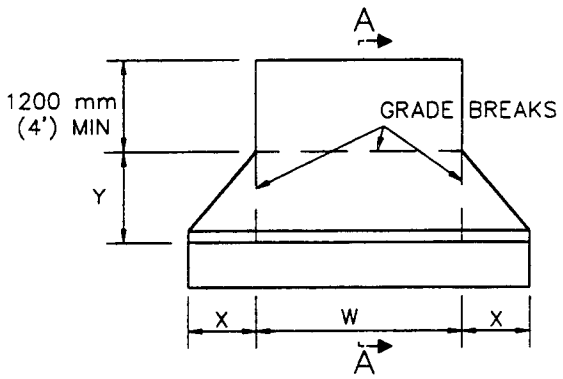


TYPE A



SECTION A–A

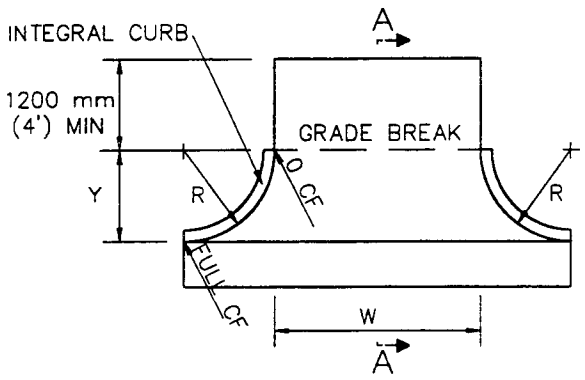
CURB FACE, mm	X, mm	Y, mm
150 (6") or less	900 (3'–0")	1200 (4'–0")
175 (7")	1050 (3'–6")	1425 (4'–9")
200 (8")	1200 (4'–0")	1700 (5'–8")
225 (9")	1350 (4'–6")	1950 (6'–6")
250 (10")	1500 (5'–0")	2175 (7'–3")
275 (11")	1650 (5'–6")	2400 (8'–0")
300 (12") or more	1800 (6'–0")	2625 (8'–9")



TYPE B

NOTES:

1. RESIDENTIAL DRIVEWAYS SHALL BE 100 mm (4") THICK PCC.
2. COMMERCIAL DRIVEWAYS SHALL BE 150 mm (6") THICK PCC.
3. WEAKENED PLANE JOINTS SHALL BE INSTALLED AT BOTH SIDE OF A DRIVEWAY AND AT APPROXIMATELY 3000 mm (10') INTERVALS.
4. CURB FOR TYPE C DRIVEWAY SHALL BE INTEGRAL AND MATCH ADJACENT CONSTRUCTION.
5. REFER TO LOCAL DEVELOPMENT REGULATIONS FOR AMERICANS WITH DISABILITIES ACCESS REQUIREMENTS AND MAXIMUM PERMITTED DRIVEWAY WIDTHS.
6. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACTLY EQUAL VALUES. IF METRIC UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH VALUES.



TYPE C

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER

PROMULGATED BY THE PUBLIC WORKS STANDARDS INC. GREENBOOK COMMITTEE 1984 REV. 1996

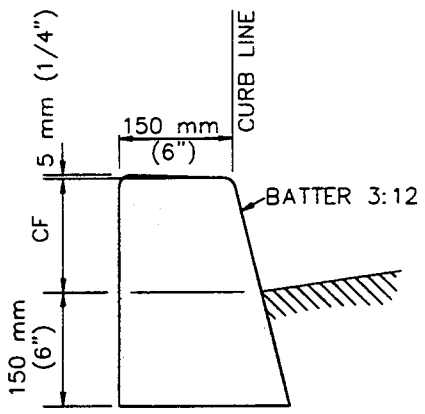
DRIVEWAY APPROACHES

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

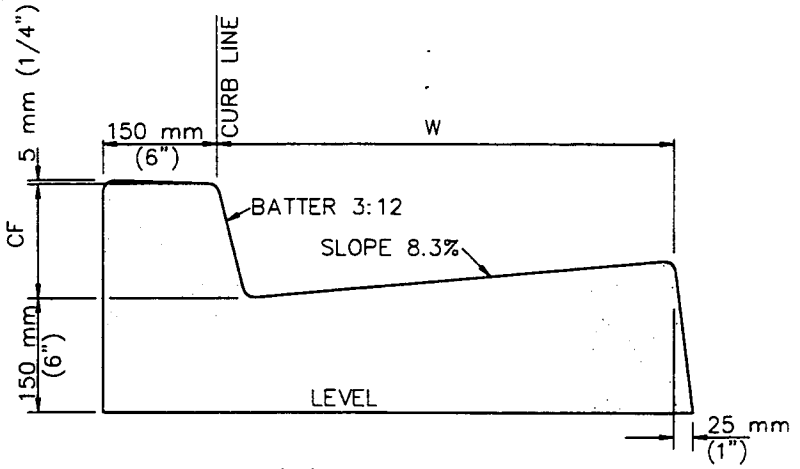
STANDARD PLAN METRIC

110 - 1

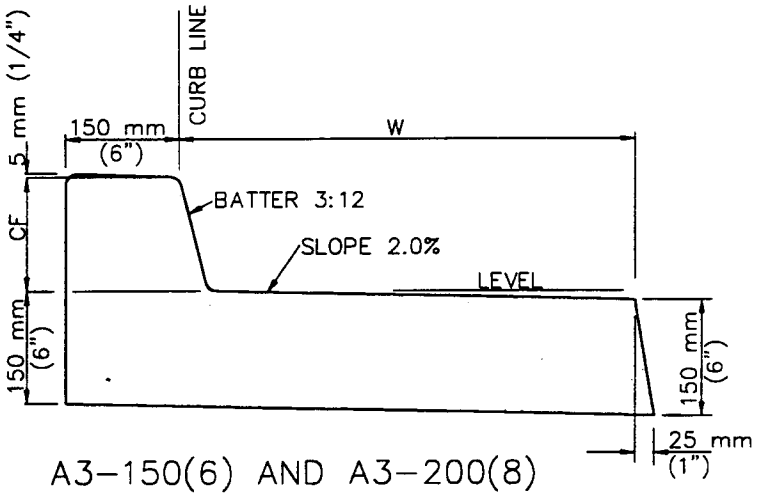
SHEET 1 OF1



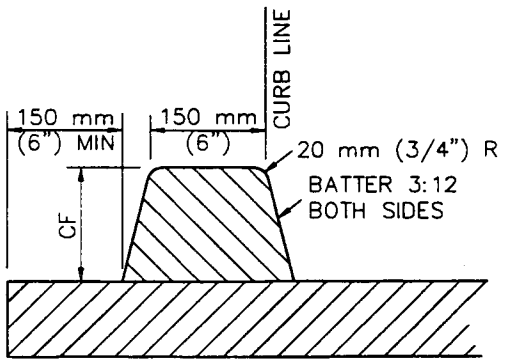
A1–150(6) AND
A1–200(8)



A2–150(6) AND A2–200(8)



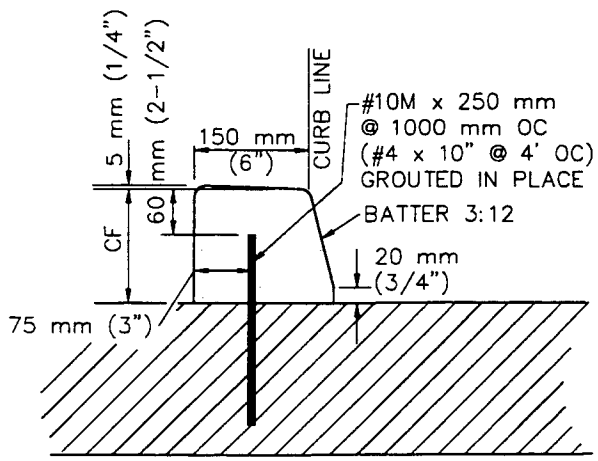
A3–150(6) AND A3–200(8)



D1–150(6) AND
D1–200(8)

NOTES:

1. THE LAST NUMBER IN THE DESIGNATION IS THE CURB FACE (CF) HEIGHT, mm (INCHES).
2. GUTTER WIDTH, W, IS 600 mm (24") UNLESS OTHERWISE SPECIFIED.
3. TYPES A1, A2, A3 AND C1 SHALL BE CONSTRUCTED FROM PCC.
4. TYPE D1 CURB SHALL BE CONSTRUCTED FROM ASPHALT CONCRETE.
5. TYPE C1 CURB SHALL BE ANCHORED WITH STEEL DOWELS AS SHOWN OR WITH AN EPOXY APPROVED BY THE ENGINEER.
6. ALL EXPOSED CORNERS ON PCC CURBS AND GUTTERS SHALL BE ROUNDED WITH A 15 mm (1/2") RADIUS.
7. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACTLY EQUAL VALUES. USE EITHER METRIC OR ENGLISH VALUES, AS REQUIRED, BUT NOT BOTH, EXCEPT THAT ASTM 615 REINFORCING STEEL MAY BE SUBSTITUTED FOR ASTM 615M STEEL.



C1–150(6) AND C1–200(8)

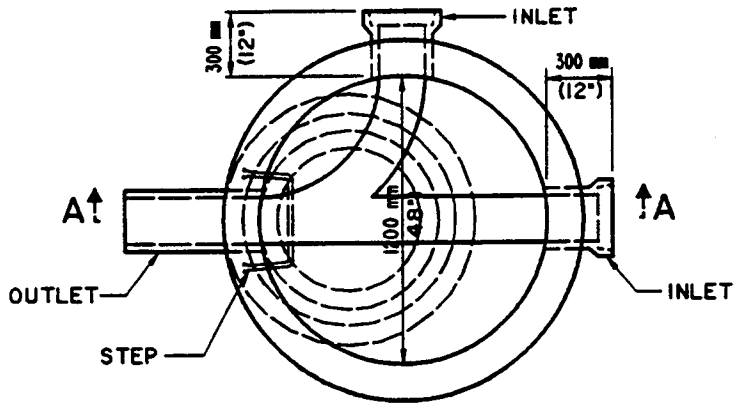
AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER

PROMULGATED BY THE PUBLIC WORKS STANDARDS INC. GREENBOOK COMMITTEE 1984 REV. 1996

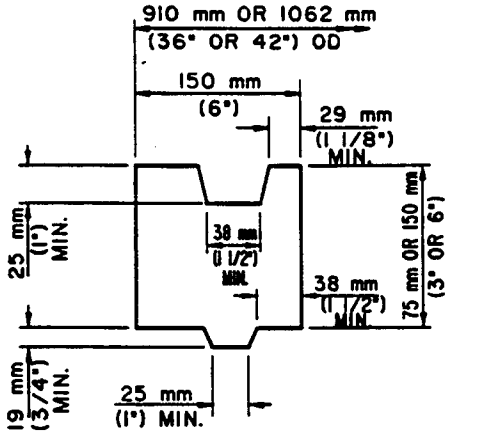
CURB AND GUTTER — BARRIER

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

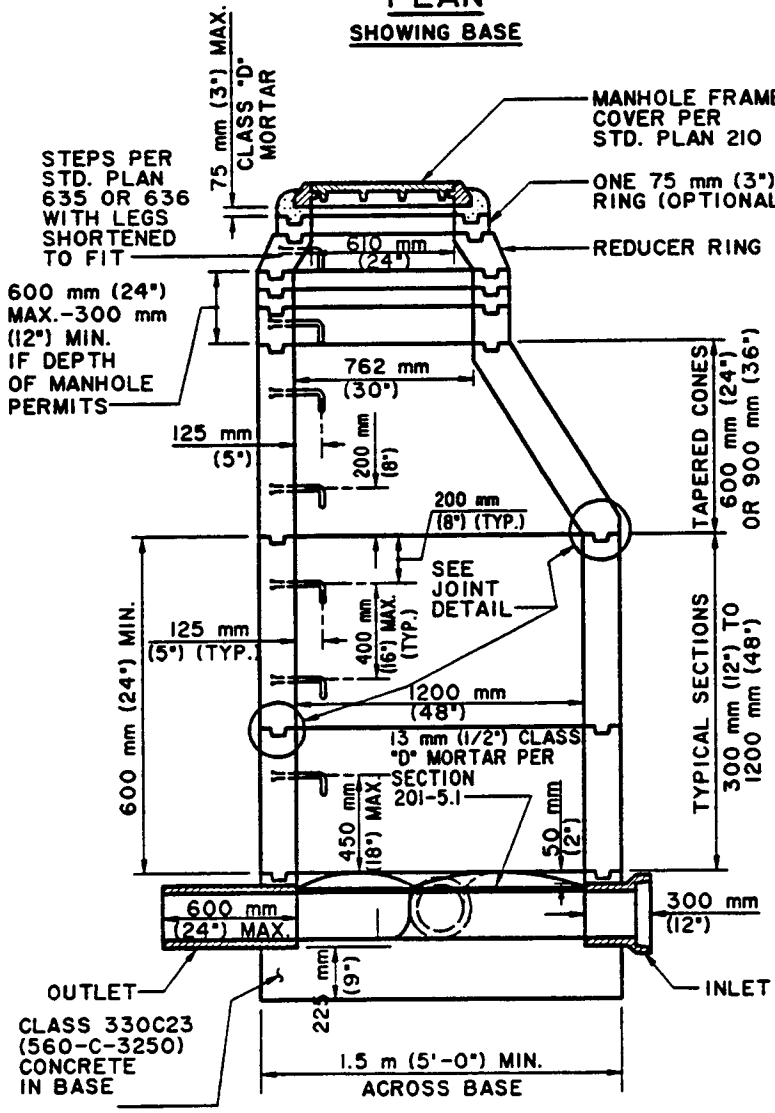
STANDARD PLAN METRIC
120 - 1
SHEET 1 OF 1



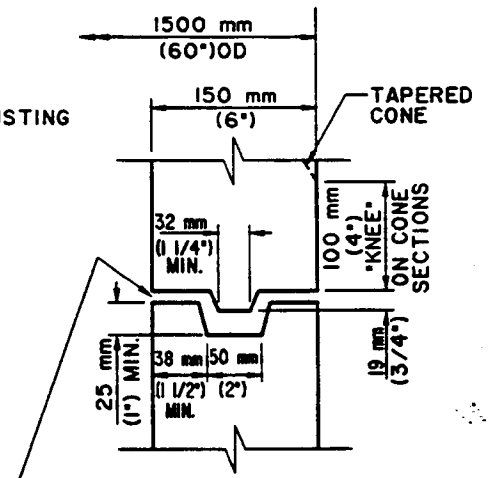
PLAN
SHOWING BASE



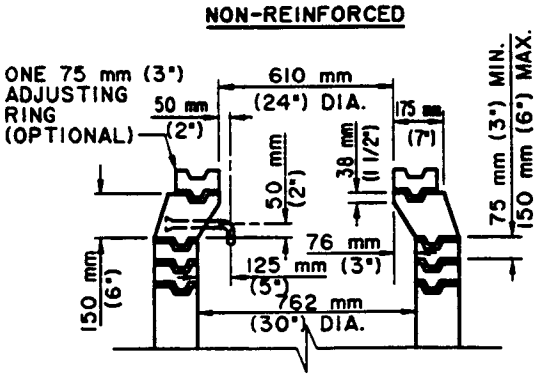
ADJUSTING RING DETAIL



SECTION A-A



JOINT DETAIL
NON-REINFORCED



REDUCER RING AND ADJUSTING RINGS

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1984 REV. 1993,1996	**PRECAST CONCRETE SEWER MANHOLE**	STANDARD PLAN METRIC **200 - 2**
	USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	SHEET 1 OF 2

NOTES:

1. EXCEPT AS NOTED HEREON, THE PRECAST UNITS SHALL BE MANUFACTURED AND TESTED IN ACCORDANCE WITH ASTM C 478. AS AN ALTERNATE CURING METHOD, THE UNITS MAY BE CURED USING SATURATED STEAM FOR A MINIMUM OF 12 HOURS FOLLOWED BY 6 DAYS OF WATER CURING OR MEMBRANE CURING. IF THE UNITS ARE CURED BY THE ALTERNATE METHOD, THEY SHALL NOT BE SHIPPED PRIOR TO 8 DAYS AFTER CASTING NOR UNTIL THE CONCRETE HAS ATTAINED A STRENGTH OF 25 MPa (3500 PSI)

2. MAHHOLE STEPS SHALL CONFORM WITH STANDARD PLAN 635 TYPE I OR 3 OR STANDARD PLAN 636. THE MANHOLE STEPS SHALL BE UNIFORMLY SPACED AT A MAXIMUM OF 400 mm (16"). THE LOWEST STEP SHALL BE PLACED NOT LESS THAN 200 mm (8") NOR MORE THAN 450 mm (18") ABOVE THE SHELF. THE STEPS SHALL PROJECT 125 mm (5") INSIDE THE MANHOLE.

3. RISER SECTIONS MAY BE REINFORCED OR UNREINFORCED. REINFORCED SECTIONS SHALL BE REINFORCED IN ACCORDANCE WITH ASTM C 478 AND SHALL HAVE A MINIMUM WALL THICKNESS OF 125 mm (5"). UNREINFORCED RISER SECTIONS SHALL HAVE A MINIMUM WALL THICKNESS OF 150 mm (6").

4. THE 600 mm x 1200 mm (24"x48") ECCENTRIC CONES MAY BE REINFORCED OR UNREINFORCED. IF REINFORCED, THE WALL THICKNESS SHALL BE NOT LESS THAN 125 mm (5"). IF UNREINFORCED, THE WALL THICKNESS SHALL NOT BE LESS THAN 150 mm (6").

5. JOINTS SHALL BE TONGUE AND GROOVE. JOINTS FOR REINFORCED STRUCTURES SHALL CONFORM WITH ASTM C 478 SECTION 14.

6. PRECAST UNITS SHALL BE ASSEMBLED USING CLASS "B" MORTAR.

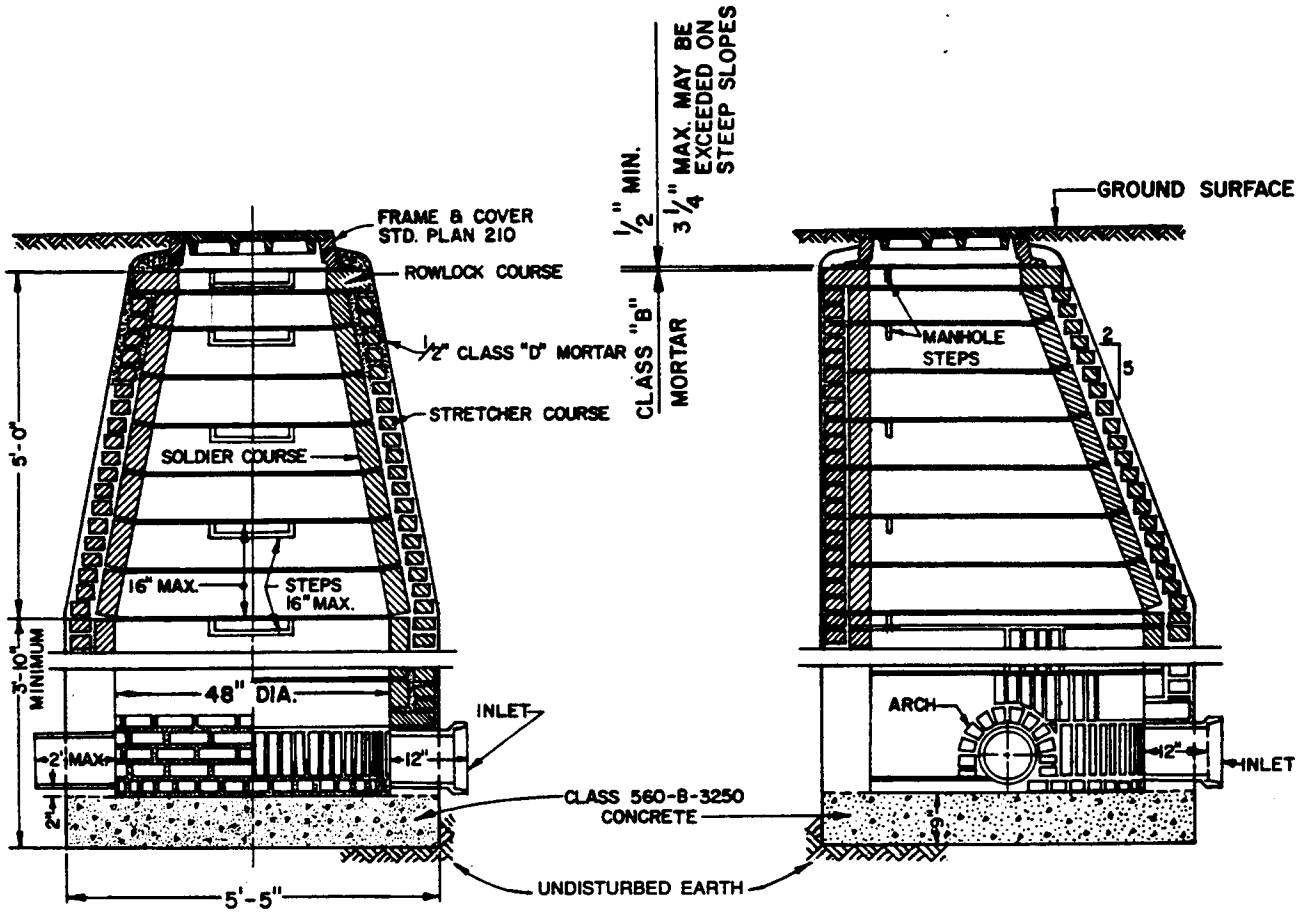
7. IF 762 mm (30") DIAMETER MANHOLE FRAME AND COVER IS REQUIRED, IT SHALL BE INSTALLED WHERE THE REDUCER RING IS SHOWN IN THE SECTION.

8. FOR REINFORCED PRECAST STRUCTURES, ALL REINFORCEMENT SHALL HAVE A MINIMUM OF 50 mm (2") OF COVER OVER THE STEEL ON THE INSIDE FACE.

9. THE TOP OPENING OF THE MANHOLE AND THE STEPS SHALL BE PLACED DIRECTLY OVER THE OUTLET OF THE STRUCTURE EXCEPT AS OTHERWISE NOTED ON PLANS.

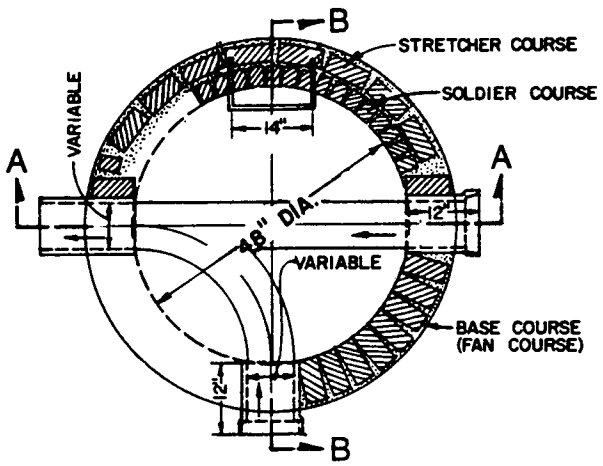
10. CONCRETE BASE AND STUB WALLS SHALL BE POURED IN ONE OPERATION TO A POINT 50 mm (2") ABOVE THE INLET AND OUTLET PIPES. ALL PIPES SHALL BE RIGIDLY SUPPORTED BY TEMPORARY PIERS OR OTHER METHODS DURING THE OPERATION. CONCRETE SHALL SET FOR 24 HOURS BEFORE PLACNG PRECAST UNITS.

11. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACT EQUAL VALUES. IF METRIC VALUES ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES, EXCEPT REINFORCING BAR SIZES IN ENGLISH UNITS MAY BE SUBSTITUTED FOR METRIC BAR SIZES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH UNITS.

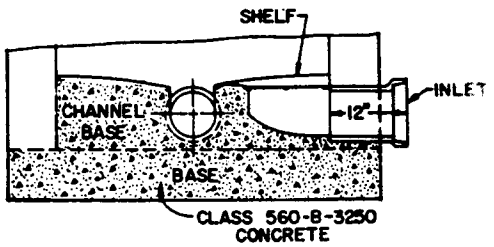


SECTION A-A

SECTION B-B



PLAN



CHANNEL BASE DETAIL
THROUGH SECTION B-B

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1984	**BRICK SEWER MANHOLE** USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	STANDARD PLAN 203 - 0 SHEET 1 OF 2

NOTES:

1. CONCRETE BASE: DURING CONSTRUCTION, ALL PIPES SHALL BE RIGIDLY SUPPORTED BY BRICK PIERS ONE FOOT DEEP, LOCATED JUST OUTSIDE THE STRUCTURE. CONSTRUCT TOP OF CONCRETE BASE 2" BELOW INVERT OF LOWEST PIPE. FILL SPACE BENEATH PIPE WITH MORTAR AND SHOVE FROM BOTH SIDES WITH BASE COURSE BRICK TO FORM A WATER TIGHT JOINT.

2. BASE OR FAN COURSE: LAY BRICK FLAT ON RADIAL LINES WITH TOPS TO SAME LEVEL.

3. ARCHES: LAY SPALLED BRICK ON EDGE TO FORM A TRUE RADIAL ARCH WITH FULL MORTAR JOINT AROUND ALL PIPE OPENINGS. TURN ARCH OF TWO SUCH COURSES OVER PIPES 15" OR MORE IN DIAMETER.

4. SOLDIER COURSES: LAY INSIDE BRICK ON RADIAL LINES WITH FIRST FOUR COURSES VERTICAL. LAY SUCCEEDING COURSES WITH A UNIFORM BATTER TO OBTAIN AN INSIDE DIAMETER OF 8" AT TOP OF LAST OR FRACTIONAL SOLDIER COURSE. USE SPLIT BRICK TO CLOSE SOLDIER COURSE.

5. STRETCHER COURSES: LAY OUTSIDE BRICK FLAT IN A DEEP BED OF MORTAR. SHOVE BRICK TOGETHER AGAINST ADJACENT SOLDIER COURSE.

6. ROWLOCK COURSE: LAY LAST COURSE OF BRICK ON EDGE ACROSS SOLDIER AND STRETCHER COURSES ON RADIAL LINES, WITH TOPS PARALLEL AND 4½" BELOW FINISHED GRADE.

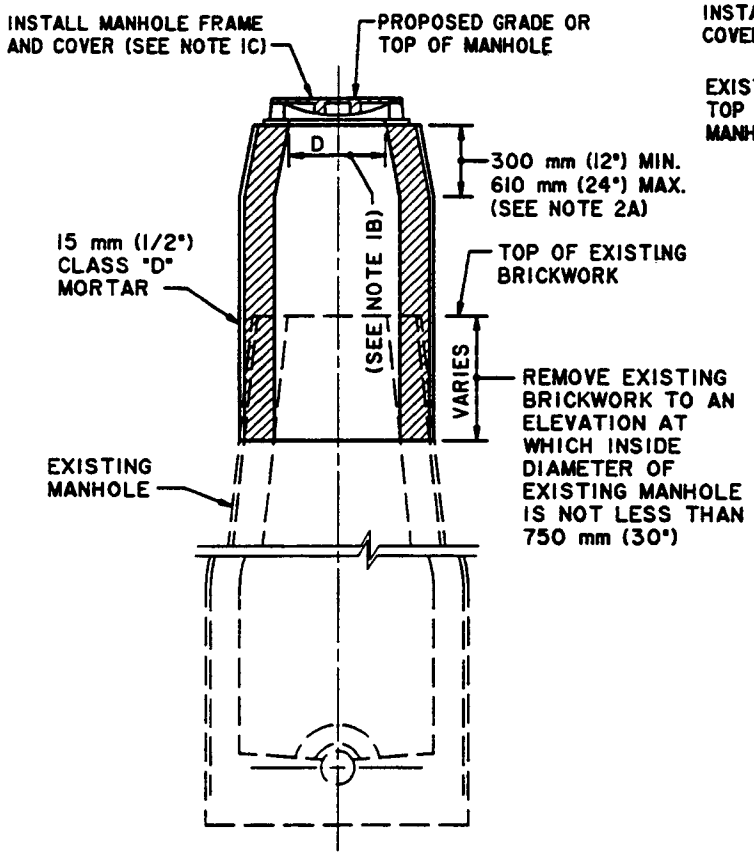
7. JOINTS: INSIDE JOINTS SHALL BE NEATLY STRUCK AND SHALL NOT EXCEED 3/8" IN THICKNESS.

8. STEPS: MANHOLE STEPS SHALL CONFORM WITH STANDARD PLAN 635 TYPE 3. THE MANHOLE STEPS SHALL BE UNIFORMLY SPACED AT A MAXIMUM OF 16" WITH THE TOP STEP PLACED JUST UNDER THE MANHOLE FRAME. THE LOWEST STEP SHALL BE PLACED NOT LESS THAN 8" NOR MORE THAN 24" ABOVE THE SHELF. THE TOP STEP AND THOSE IN THE 24" DIAMETER SECTION SHALL PROJECT 4" INSIDE THE MANHOLE AND ALL OTHERS 5".

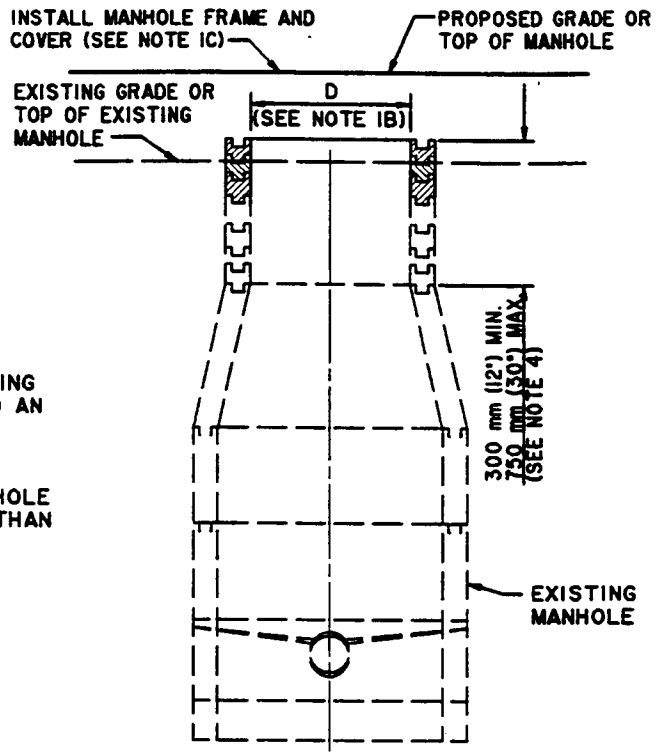
9. MORTAR: MORTAR FOR LAYING BRICK OR PLASTERING SHALL BE CLASS "D".

10. WALL THICKNESS: BRICKWORK SHALL BE 8" THICK TO A DEPTH OF 22'. BRICKWORK BELOW 22' IN DEPTH SHALL BE 12" THICK.

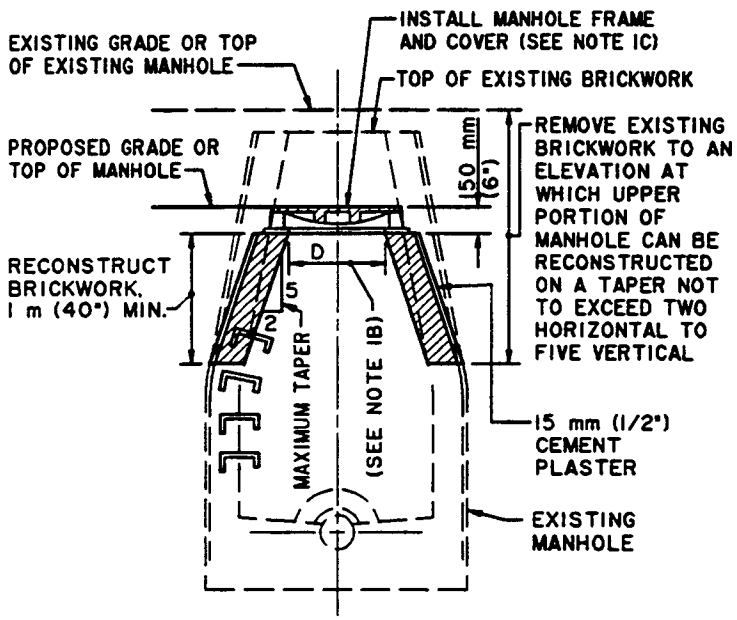
11. A FLEXIBLE JOINT SHALL BE INSTALLED AT FIRST JOINT FROM MANHOLE ON ALL CONNECTIONS EXCEPT ON REINFORCED CONCRETE PIPE.



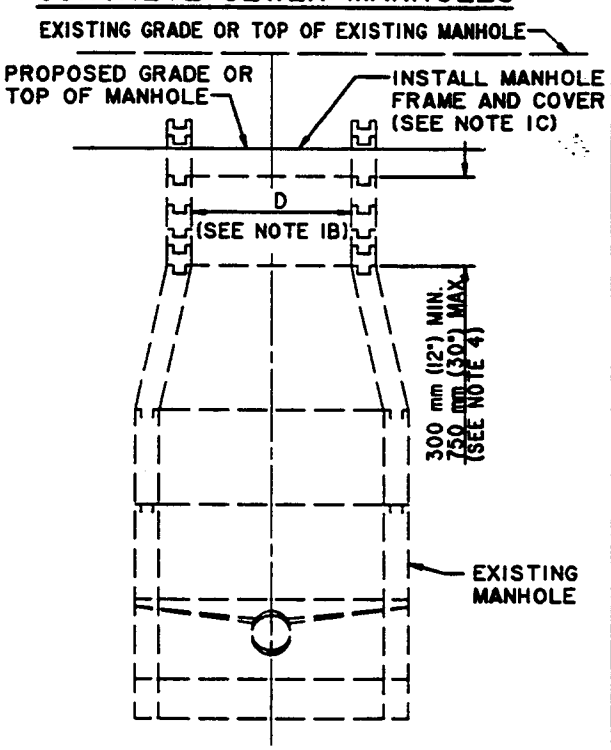
RAISING EXISTING BRICK MANHOLES



RAISING EXISTING PRECAST CONCRETE SEWER MANHOLES



LOWERING EXISTING BRICK MANHOLES



LOWERING EXISTING PRECAST CONCRETE SEWER MANHOLES

BRICK MANHOLES

PRECAST CONCRETE SEWER MANHOLES

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER

PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1984 REV. 1996

SEWER MANHOLE ADJUSTMENT

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN METRIC 205 - 1

SHEET 1 OF 3

NOTES:

1. GENERAL
   A. EXCEPT AS INDICATED HEREON OR ON THE PROJECT PLANS, MANHOLES SHALL CONFORM TO: STANDARD PLAN 200, PRECAST CONCRETE SEWER MANHOLE AND STANDARD PLAN 203, BRICK SEWER MANHOLE.

   B. DIMENSION "D" SHALL BE THE SAME AS THE SIZE OF MANHOLE FRAME AND COVER TO BE USED.

   C. THE CONTRACTOR MAY REUSE THE EXISTING MANHOLE FRAME AND COVER, UNLESS DAMAGED BY HIM DURING HIS CONSTRUCTION OPERATIONS OR WHEN OTHERWISE INDICATED ON THE PROJECT PLANS. ITEMS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED WITH IDENTICAL NEW ITEMS AT NO EXPENSE TO THE AGENCY.

   D. EXISTING STEPS LOCATED WITHIN REMOVAL LIMITS SHALL BE REPLACED. WHEN REMOVAL OF EXISTING STEPS BEYOND THE MANHOLE REMOVAL LIMITS IS INDICATED ON THE PROJECT PLANS, THE STEPS SHALL BE REMOVED TO A DEPTH OF 50 mm (2 IN.) BEYOND THE INSIDE FACE OF THE BRICK MANHOLE AND THE HOLES SHALL BE FILLED WITH CLASS "D" MORTAR.

2. RAISING EXISTING BRICK MANHOLES
   A. BRICK MANHOLES TO BE RAISED LESS THAN 300 mm (1 FT.) MAY BE EXTENDED VERTICALLY, PROVIDED THAT AT A DEPTH OF 750 mm (2 1/2 FT.) BELOW THE TOP OF THE MANHOLE AT ITS NEW ELEVATION, THE INSIDE DIAMETER OF THE MANHOLE IS 750 mm (30 IN.) OR GREATER.

   B. BRICK MANHOLES TO BE RAISED LESS THAN 90 mm (3 1/2 IN.) MAY BE RAISED BY APPLYING CLASS "D" MORTAR TO THE TOP OF THE EXISTING BRICKWORK. IF THE BRICK MANHOLE IS TO BE RAISED 90 mm (3 1/2 IN.) OR MORE, A NEW COURSE OR COURSES OF BRICKWORK SHALL BE PLACED ON TOP OF THE EXISTING BRICKWORK.

3. LOWERING EXISTING BRICK MANHOLES
   A. WHERE A BRICK MANHOLE IS TO BE LOWERED LESS THAN 300 mm (1 FT.), THE FRAME MAY BE RESET ON THE EXISTING BRICKWORK AND THE ONE METER (40 IN.) MINIMUM BRICKWORK RECONSTRUCTION OMITTED, PROVIDED THAT THE BASE OF THE FRAME DOES NOT OVERHANG THE BRICKWORK ON THE INSIDE SURFACE OF THE MANHOLE MORE THAN AN AVERAGE OF 35 mm (1 1/2 IN.) IN ANY QUADRANT NOR MORE THAN 50 mm (2 IN.) AT ANY POINT.

4. RAISING EXISTING PRECAST CONCRETE SEWER MANHOLES
   A. PRECAST CONCRETE MANHOLES TO BE RAISED LESS THAN 75 mm (3 IN.) MAY BE RAISED BY APPLYING CLASS "D" MORTAR TO THE TOP OF THE EXISTING MANHOLE, PROVIDED THE TOTAL HEIGHT OF MORTAR, EXISTING AND NEWLY APPLIED, DOES NOT EXCEED 75 mm (3 IN.).

   B. WHERE THE PRECAST CONCRETE MANHOLE IS TO BE RAISED 75 mm (3 IN.) OR MORE, OR WHERE THE TOTAL HEIGHT OF MORTAR, EXISTING AND NEWLY APPLIED, WOULD EXCEED 75 mm (3 IN.), GRADE RINGS SHALL BE UTILIZED. CLASS "D" MORTAR MAY BE USED FOR FINAL ADJUSTMENT, BUT NOT MORE THAN 75 mm (3 IN.) IN HEIGHT. WHERE RAISING THE MANHOLE WOULD RESULT IN THE UPPER SEGMENT OF THE SHAFT BEING MORE THAN 750 mm (30 IN.) IN HEIGHT, REMOVE THE REDUCER AND THE UPPER SEGMENT OF THE SHAFT, INSTALL ADDITIONAL RINGS OR PIPE TO THE LOWER SEGMENT OF THE SHAFT, AND REINSTALL THE REDUCER AND GRADE RINGS AS REQUIRED.

5. LOWERING EXISTING PRECAST CONCRETE SEWER MANHOLES

   A. REMOVE SUFFICIENT GRADE RINGS TO LOWER THE MANHOLES AS REQUIRED, APPLY CLASS "D" MORTAR TO A HEIGHT NOT EXCEEDING 75 mm (3 IN.) FOR ADJUSTMENT TO FINAL GRADE.

   B. WHERE REMOVAL OF GRADE RINGS WOULD RESULT IN THE UPPER SEGMENT OF THE SHAFT BEING LESS THAN 300 mm (12 IN.) IN HEIGHT, REMOVE THE REDUCER AND SUFFICIENT SECTIONS OF THE LOWER SEGMENT OF THE SHAFT AND REINSTALL ANY NECESSARY SEGMENT OF THE LOWER SHAFT, THE REDUCER, AND THE GRADE RINGS TO CONFORM TO THE REQUIREMENTS OF THIS PLAN.

   C. EXISTING GRADE RINGS NEED NOT BE REMOVED IF EXISTNG MORTAR IS REMOVED, AND AT LEAST 35 mm (1 1/2 IN.) OF MORTAR MAY BE PLACED ON TOP OF THE EXISTING GRADE RINGS TO RESEAT THE FRAME.

6. REPLACEMENT OF BRICK REDUCER WITH PRECAST CONCRETE REDUCER AND SHAFT

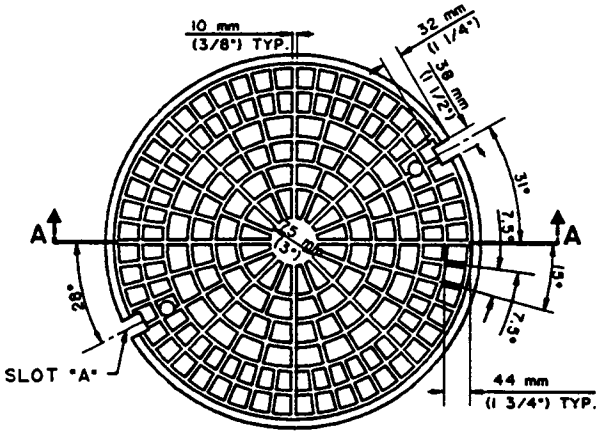
   UNLESS OTHERWISE INDICATED ON THE PLANS, THE CONTRACTOR MAY INSTALL A PRECAST CONCENTRIC CONCRETE REDUCER, CONCRETE GRADE RINGS, AND CONCRETE PIPE IN LIEU OF RECONSTRUCTING A BRICK REDUCER, PROVIDED:

   A. THE MAXIMUM I.D. OF SEWER PIPE CONNNECTED TO THE MANHOLE DOES NOT EXCEED 200 mm (8 IN.).

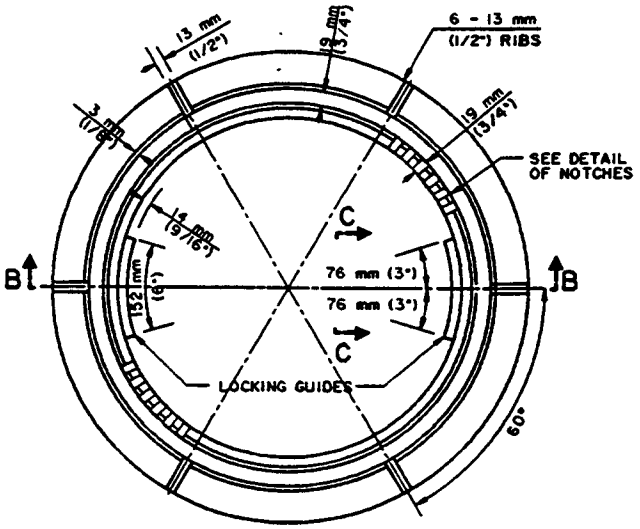
   B. THE CONTRACTOR SECURES PRIOR APPROVAL FROM THE ENGINEER TO INSTALL THE CONCENTRIC REDUCER ONTO THE MANHOLE SHAFT. THE ENGINEER MAY, AS PART OF THE INSTALLATION REQUIREMENTS, REQUIRE THE CONTRACTOR TO COAT THE INSIDE OF THE REDUCER, RINGS, AND PIPE WITH AN APPROVED COATING.

   C. THE CONCRETE GRADE RINGS, THE CONCRETE REDUCER, AND ANY CONCRETE PIPE SHALL BE JOINED TOGETHER AND BEDDED ONTO THE EXISTING BRICK MANHOLE WITH CLASS "D" MORTAR. THE DEPTH, WIDTH, AND THICKNESS OF THE MORTAR SHALL BE OF SUFFICIENT DIMENSIONS TO PROPERLY AND ADEQUATELY JOIN AND BED THE COMPONENT PARTS.

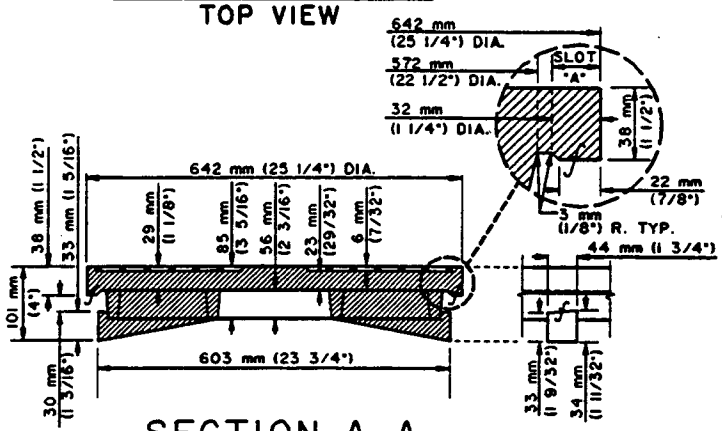
7. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACT EQUAL VALUES. IF METRIC UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES WITH THE EXCEPTION OF REINFORCING BAR SIZES FOR WHICH ENGLISH (IMPERIAL) BAR SIZES MAY BE SUBSTITUTED FOR METRIC BAR SIZES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH VALUES.



PLAN OF COVER
TOP VIEW

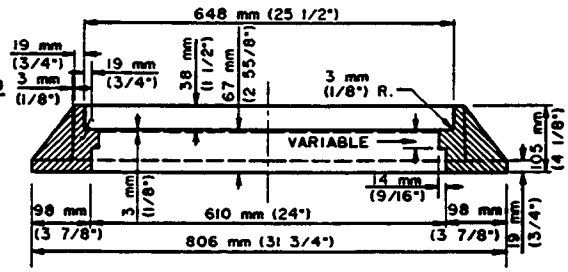


PLAN OF FRAME

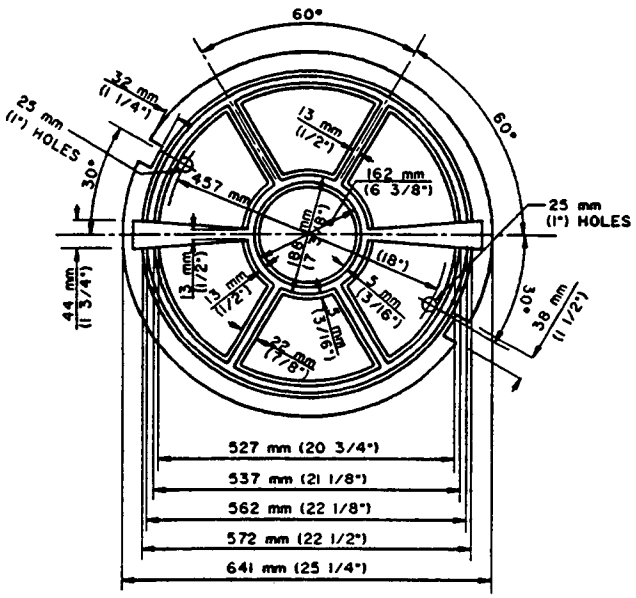


SECTION A-A

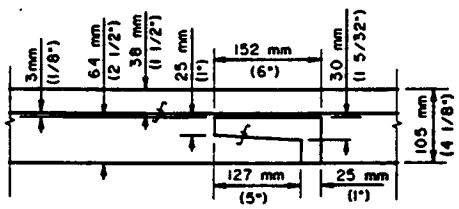
COVER LUG
END VIEW



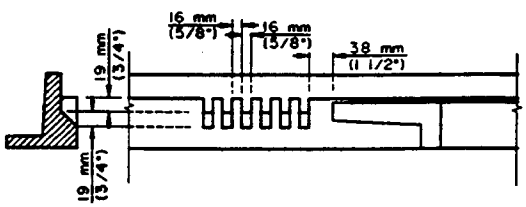
SECTION B-B



PLAN OF COVER
BOTTOM VIEW



LOCKING GUIDE
SIDE VIEW C-C



DETAIL OF NOTCHES

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1984 REV. 1996	**610 mm (24") MANHOLE FRAME AND COVER LOCKING TYPE** USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	STANDARD PLAN METRIC 210 - 2 SHEET 1 OF 2

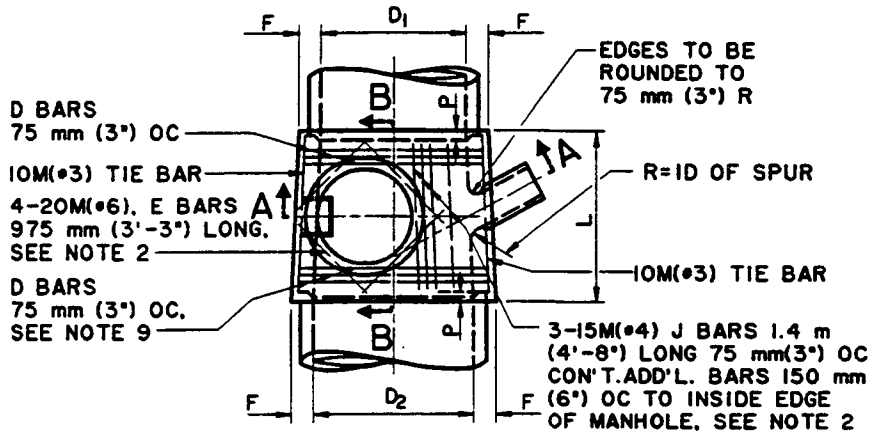
NOTES:

1. THE CAST IRON USED SHALL CONFORM WITH ASTM A-48 CLASS 35B.
2. THE FRAME AND COVER SHALL BE COATED WITH ASPHALTUM OR BITUMINOUS PAINT AFTER TESTING AND INSPECTION.
3. COVERS SHALL BE CAST WITH THE LETTER "D" FOR STORM DRAINS AND "S" FOR SEWERS AND THE AGENCY IDENTIFICATION IN ACCORDANCE WITH INSTRUCTIONS FURNISHED BY THE AGENCY. THE LETTER "D" OR "S" SHALL BE APPROXIMATELY 65 mm (2 1/2") HIGH WITH 13 mm (1/2") LINE WIDTH AND PLACED IN THE CENTER OF THE COVER. ALL LETTERS SHALL BE FLUSH WITH THE FINISHED SURFACE OF THE COVER.
4. FOUNDRY IDENTIFYING MARK, HEAT AND DATE SHALL BE CAST ON THE BOTTOM OF THE COVER AND ON THE INSIDE OF THE FRAME.
5. IMPORTED COVERS AND FRAMES SHALL HAVE THE COUNTRY OF ORIGIN MARKING IN COMPLIANCE WITH FEDERAL REGULATIONS.
6. WEIGHT OF FRAME SHALL BE 73 kg (160 POUNDS) WEIGHT OF COVER SHALL BE 91 kg (200 POUNDS). ACTUAL WEIGHTS SHALL BE WITHIN A RANGE OF 95% TO 110%.
7. THE MANHOLE FRAME AND COVER SHALL BE INSPECTED BY THE ENGINEER PRIOR TO SHIPMENT TO THE JOB SITE. ACCEPTANCE WILL BE INDICATED BY THE AGENCY'S MARK.
8. THE PROOF-LOAD FOR TEST METHOD B OF THE STANDARD SPECIFICATIONS IS 25,100 kg (55,300 POUNDS).
9. COVERS FOR MANHOLES LOCATED IN EASEMENTS, ALLEYS, PARKWAYS AND ALL OTHER PLACES EXCEPT PAVED STREETS SHALL BE PROVIDED WITH SOCKET SET SCREW LOCKING DEVICES. DRILL AND TAP TWO HOLES TO A DEPTH OF 25 mm (1") AT 90 DEGREES TO PICK HOLE AND INSTALL 19 mm x 19 mm (3/4" x 3/4") STAINLESS STEEL SOCKET SET SCREWS WITH 10 mm (3/8") RECESSED HEX HEAD. ALL THREADS SHALL BE N.C.
10. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACT EQUAL VALUES. IF METRIC VALUES ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES, EXCEPT REINFORCING BAR SIZES IN ENGLISH UNITS MAY BE SUBSTITUTED FOR METRIC BAR SIZES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH UNITS.

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER

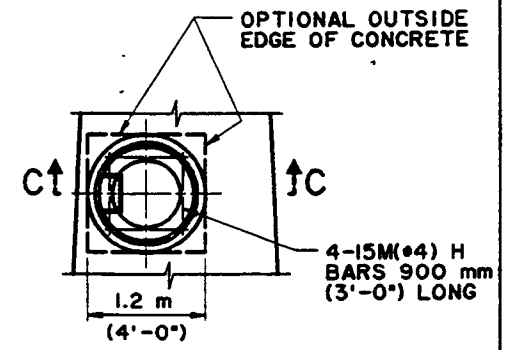
610 mm (24") MANHOLE FRAME AND COVER LOCKING TYPE

STANDARD PLAN METRIC
210 - 2
SHEET 2 OF 2



PLAN

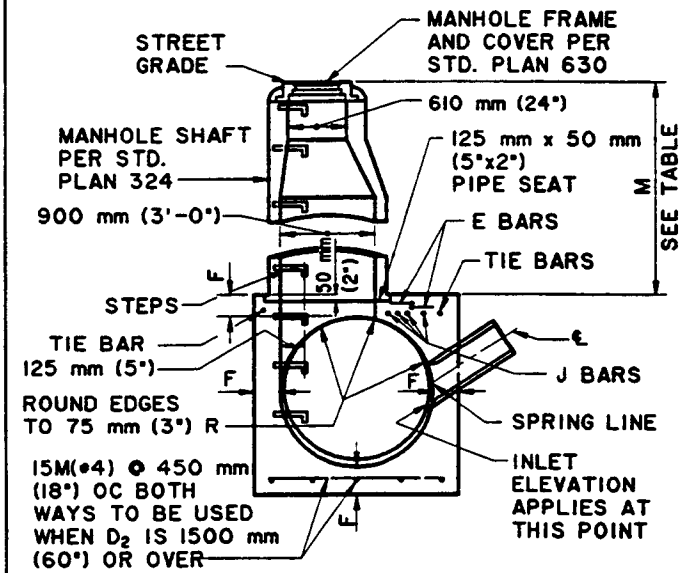
(SHAFT NOT SHOWN)



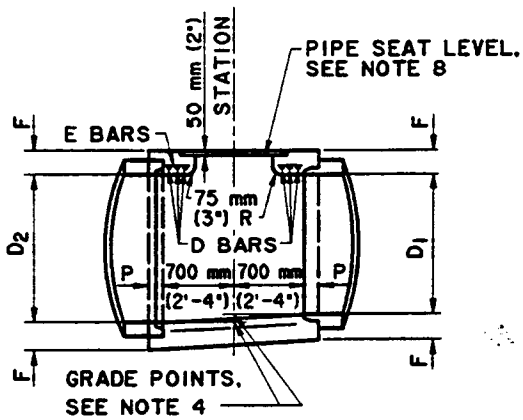
DETAIL "N"

(RINGS AND COVER NOT SHOWN)

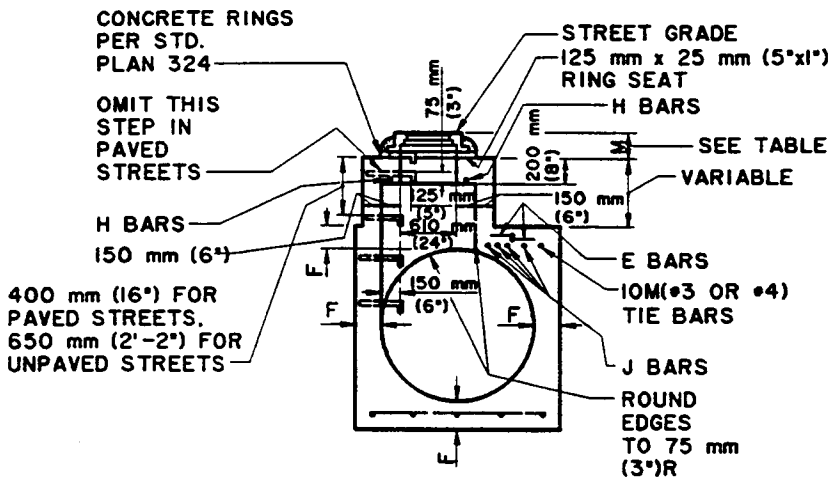
(SEE NOTE 1)



SECTION A-A



SECTION B-B



SECTION C-C

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1992 REV. 1996	**MANHOLE PIPE TO PIPE MAIN LINE ID=900 mm (36") OR LARGER** USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	STANDARD PLAN METRIC 320 - 1 SHEET 1 OF 4

TABLE OF VALUES FOR F	
D_2	F
900 mm (36")	165 mm (6 1/2")
975 mm (39")	180 mm (7")
1050 mm (42")	190 mm (7 1/2")
1125 mm (45")	195 mm (7 3/4")
1200 mm (48")	205 mm (8")
1275 mm (51")	215 mm (8 1/2")
1350 mm (54")	230 mm (9")
1425 mm (57")	235 mm (9 1/4")
1500 mm (60")	240 mm (9 1/2")
1575 mm (63")	255 mm (10")
1650 mm (66")	260 mm (10 1/4")
1725 mm (69")	275 mm (10 3/4")
1800 mm (72")	280 mm (11")
1950 mm (78")	300 mm (11 3/4")
2100 mm (84")	320 mm (12 1/2")
2250 mm (90")	335 mm (13 1/4")
2400 mm (96")	355 mm (14")
2550 mm (102")	395 mm (15 1/2")
2700 mm (108")	405 mm (16")
2850 mm (114")	420 mm (16 1/2")
3000 mm (120")	430 mm (17")
3150 mm (126")	430 mm (17")
3300 mm (132")	445 mm (17 1/2")
3450 mm (138")	445 mm (17 1/2")
3600 mm (144")	455 mm (18")

TABLE OF VALUES FOR M (SEE NOTE 1)				
SECTION	PAVED STREET		UNPAVED STREET	
	MAX.	MIN.	MAX.	MIN.
A-A		867 mm (2'-10 1/2")		1060 mm (3'-6")
C-C	282 mm (11")	217 mm (8 1/2")	410 mm (16")	380 mm (15")

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER

MANHOLE PIPE TO PIPE MAIN LINE ID=900 mm (36") OR LARGER

STANDARD PLAN METRIC
320 - 1
SHEET 2 OF 4

NOTES

1. WHEN DEPTH M FROM STREET GRADE TO THE TOP OF THE BOX IS LESS THAN 867 mm (2'-10 1/2") FOR PAVED STREETS OR 1060 mm (3'-6") FOR UNPAVED STREETS, CONSTRUCT MONOLITHIC SHAFT PER SECTION C-C AND DETAIL "N". SHAFT FOR ANY DEPTH OF MANHOLE MAY BE CONSTRUCTED PER SECTION C-C. WHEN DIAMETER D_1 IS 1200 mm (48") OR LESS, CENTER OF SHAFT MAY BE LOCATED PER NOTE 2.

2. CENTER OF MANHOLE SHAFT SHALL BE LOCATED OVER CENTER LINE OF STORM DRAIN WHEN DIAMETER D_1 IS 1200 mm (48") OR LESS, IN WHICH CASE PLACE E BARS SYMMETRICALLY AROUND SHAFT AT 45° WITH CENTER LINE AND OMIT J BARS.

3. L AND P SHALL HAVE THE FOLLOWING VALUES UNLESS OTHERWISE SHOWN ON THE PROJECT DRAWINGS:
   A. D_2=2400 mm (96") OR LESS, L=1.7 m (5'-6"), P=130 mm (5")
   B. D_2 OVER 2400 mm (96"), L=1.8 m (6'-0"), P=210 mm (8")
   L MAY BE INCREASED OR LOCATION OF MANHOLE SHIFTED TO MEET PIPE ENDS. WHEN L GREATER THAN THAT SHOWN ABOVE IS SPECIFIED, D BARS SHALL BE CONTINUED 150 mm (6") OC.

4. STATIONS OF MANHOLES SHOWN ON PROJECT DRAWINGS APPLY AT CENTER LINE OF SHAFT. ELEVATIONS ARE SHOWN AT CENTER LINE OF SHAFT AND REFER TO THE PROLONGED INVERT GRADE LINES.

5. REINFORCEMENT SHALL CONFORM TO ASTM A 615M, GRADE 300 (ASTM A 615, GRADE 40), AND SHALL TERMINATE 40 mm (1 1/2") CLEAR OF CONCRETE SURFACES UNLESS OTHERWISE SHOWN.

6. FLOOR OF MANHOLE SHALL BE STEEL TROWELED TO SPRING LINE.

7. BODY OF MANHOLE SHALL BE POURED IN ONE CONTINUOUS OPERATION EXCEPT THAT A CONSTRUCTION JOINT WITH A LONGITUDINAL KEYWAY MAY BE PLACED AT SPRING LINE.

8. THICKNESS OF THE DECK SHALL VARY WHEN NECESSARY TO PROVIDE A LEVEL SEAT BUT SHALL NOT BE LESS THAN THE TABULAR VALUES FOR F SHOWN ON TABLE SH. 2.

9. D BARS SHALL BE 15M(#4) FOR D_2=975 mm(39") OR LESS, 15M(#5) FOR D_2=1050 mm (42") TO 2100 mm (84") INCLUSIVE AND 20M(#6) FOR D_2=2250 mm (90") OR OVER.

10. CENTER LINE OF INLET PIPE SHALL INTERSECT INSIDE FACE OF CONE AT SPRING LINE UNLESS OTHERWISE SHOWN.

11. STEPS SHALL CONFORM TO STANDARD PLAN 635 OR 636 UNLESS OTHERWISE SHOWN, STEPS SHALL BE UNIFORMLY SPACED 350 mm (14") TO 375 mm (15") OC. THE LOWEST STEP SHALL NOT BE MORE THAN 600 mm (24") ABOVE THE INVERT.

12. THE FOLLOWING CRITERIA SHALL BE USED FOR THIS MANHOLE:
   A. MAIN LINE = 900 mm (36") INSIDE DIAMETER OR LARGER. EXCEPT IF THE MAIN LINE RCP DOWNSTREAM OF MANHOLE IS 900 mm (36") TO 1050 mm (42") INSIDE DIAMETER AND THE MAIN LINE RCP UPSTREAM IS 825 mm (33") OR LESS STANDARD PLAN 321 SHALL BE USED.

B. THE OUTSIDE DIAMETER OF THE LATERAL MUST BE LESS THAN OR EQUAL TO 1/2 THE INSIDE DIAMETER OF THE MAIN LINE. IF THE UPSTREAM AND DOWNSTREAM DIAMETERS OF THE MANHOLE ARE NOT THE SAME, THE GOVERNING INSIDE DIAMETER OF THE MAIN LINE SHALL BE CONSIDERED TO BE THAT WHERE THE EXTENDED CENTER LINE OF THE LATERAL ENTERS THE MANHOLE.

C. IN NO INSTANCE SHALL THE INSIDE DIAMETER OF THE LATERAL TO THE MANHOLE BE GREATER THAN 750 mm (30").

13. MANHOLE FRAME AND COVER SHALL CONFORM TO STANDARD PLAN 630 UNLESS OTHERWISE SHOWN.

14. MANHOLE SHAFT SHALL CONFORM TO STANDARD PLAN 324 UNLESS OTHERWISE SHOWN.

15. WHERE A MANHOLE SHAFT - 900 mm (36") WITHOUT REDUCER IS SPECIFIED REFER TO STANDARD PLAN 326.

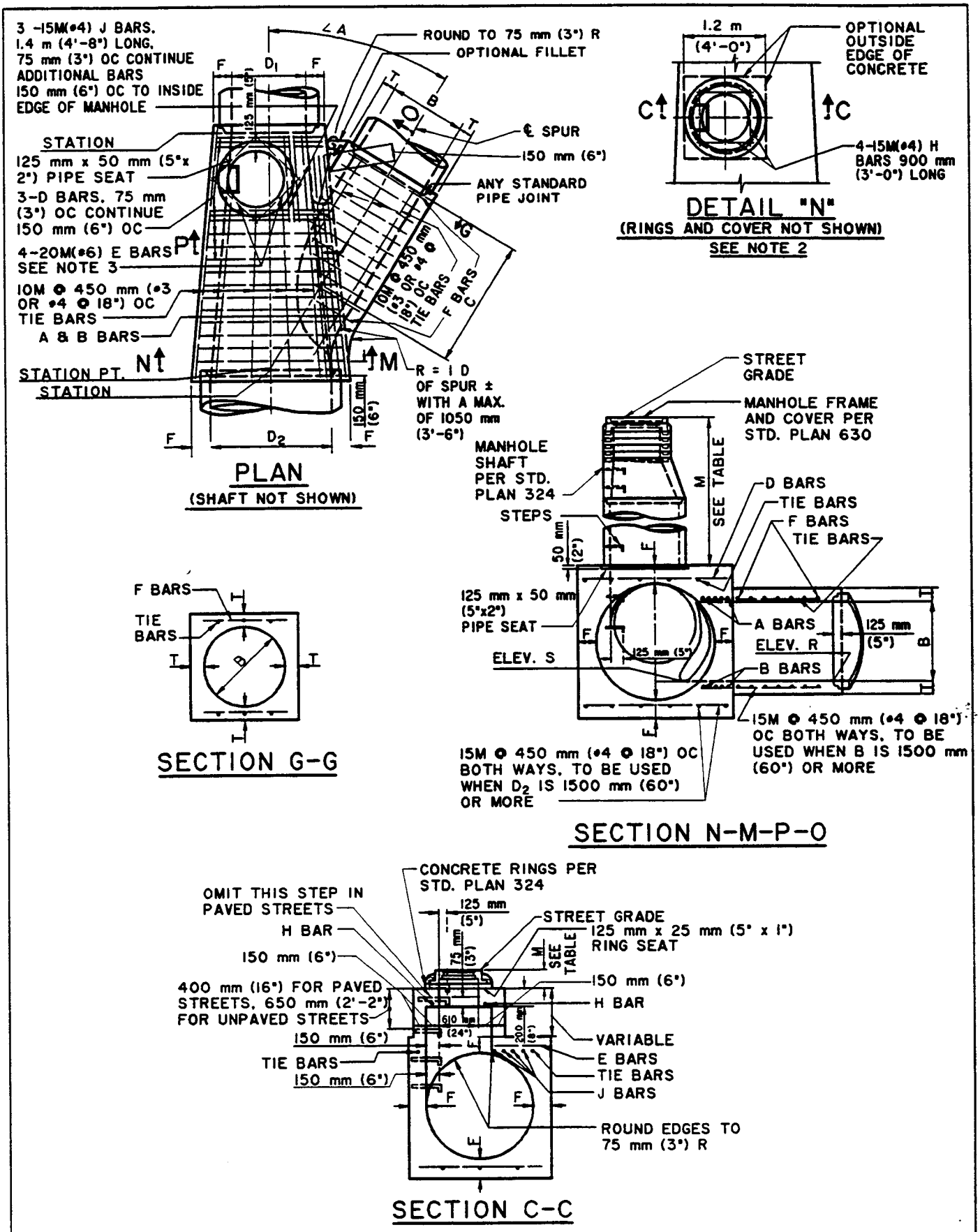
16. WHERE A PRESSURE MANHOLE SHAFT - WITH ECCENTRIC REDUCER IS SPECIFIED REFER TO STANDARD PLAN 328.

17. WHERE A PRESSURE MANHOLE SHAFT - 914 mm (36") WITHOUT REDUCER IS SPECIFIED REFER TO STANDARD PLAN 329.

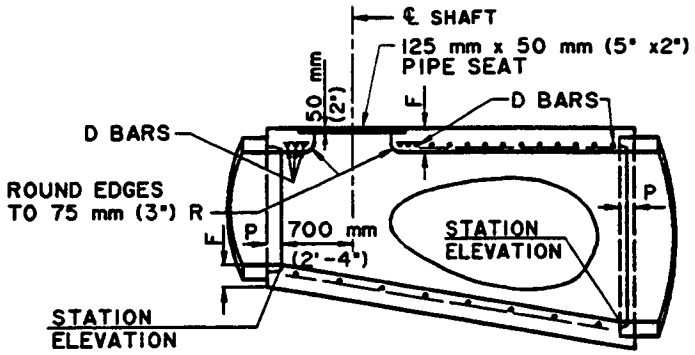
18. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACT EQUAL VALUES. IF METRIC VALUES ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES, EXCEPT REINFORCING BAR SIZES IN ENGLISH UNITS MAY BE SUBSTITUTED FOR METRIC BAR SIZES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH UNITS.

THE FOLLOWING STANDARD PLANS ARE INCORPORATED HEREIN:

324 MANHOLE SHAFT - WITH ECCENTRIC REDUCER
326 MANHOLE SHAFT - 900 mm (36") WITHOUT REDUCER
328 PRESSURE MANHOLE SHAFT - WITH ECCENTRIC
329 PRESSURE MANHOLE SHAFT 914 mm (36") WITHOUT REDUCER
630 610 mm (24") MANHOLE FRAME AND COVER
633 914 mm (36") MANHOLE FRAME AND COVER
635 STEEL STEP
636 POLYPROPYLENE PLASTIC STEP



AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1992 REV. 1996	**MANHOLE PIPE TO PIPE (LARGE SIDE INLET)**	STANDARD PLAN METRIC 322 - 1
	USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	SHEET 1 OF 4



LONGITUDINAL SECTION

TABLE OF BARS SIZES		
D_2 OR B	A & B	D OR F
300 mm (12")-975 mm (39")	15M @ 75 mm (#5 @ 3")	15M @ 150 mm (#4 @ 6")
1050 mm (42")-2100 mm (84")	20M @ 75 mm (#6 @ 3")	15M @ 150 mm (#5 @ 6")
2250 mm (90")-3600 mm (144")	25M @ 75 mm (#7 @ 3")	20M @ 150 mm (#6 @ 6")

TABLE OF VALUES FOR M (SEE NOTE 2)				
SECTION	PAVED STREET		UNPAVED STREET	
	MAX.	MIN.	MAX.	MIN.
N-M-P-O		867 mm (2'-10 1/2")		1060 mm (3'-6")
C-C	282 mm (11")	217 mm (8 1/2")	410 mm (16")	380 mm (15")

TABLE OF VALUES FOR F	
D_2	F
900 mm (36")	165 mm (6 1/2")
975 mm (39")	180 mm (7")
1050 mm (42")	190 mm (7 1/2")
1125 mm (45")	195 mm (7 3/4")
1200 mm (48")	205 mm (8")
1275 mm (51")	215 mm (8 1/2")
1350 mm (54")	230 mm (9")
1425 mm (57")	235 mm (9 1/4")
1500 mm (60")	240 mm (9 1/2")
1575 mm (63")	255 mm (10")
1650 mm (66")	260 mm (10 1/4")
1725 mm (69")	275 mm (10 3/4")
1800 mm (72")	280 mm (11")
1950 mm (78")	300 mm (11 3/4")
2100 mm (84")	320 mm (12 1/2")
2250 mm (90")	335 mm (13 1/4")
2400 mm (96")	355 mm (14")
2550 mm (102")	395 mm (15 1/2")
2700 mm (108")	405 mm (16")
2850 mm (114")	420 mm (16 1/2")
3000 mm (120")	430 mm (17")
3150 mm (126")	430 mm (17")
3300 mm (132")	445 mm (17 1/2")
3450 mm (138")	445 mm (17 1/2")
3600 mm (144")	455 mm (18")

TABLE OF VALUES FOR T	
B	T
300 mm (12")	100 mm (4")
375 mm (15")	110 mm (4 1/4")
450 mm (18")	115 mm (4 1/2")
525 mm (21")	125 mm (5")
600 mm (24")	135 mm (5 1/4")
675 mm (27")	140 mm (5 1/2")
750 mm (30")	150 mm (6")
825 mm (33")	160 mm (6 1/4")
900 mm (36")	165 mm (6 1/2")
975 mm (39")	180 mm (7")
1050 mm (42")	190 mm (7 1/2")
1125 mm (45")	195 mm (7 3/4")
1200 mm (48")	205 mm (8")
1275 mm (51")	215 mm (8 1/2")
1350 mm (54")	230 mm (9")
1425 mm (57")	235 mm (9 1/4")
1500 mm (60")	240 mm (9 1/2")
1575 mm (63")	255 mm (10")
1650 mm (66")	260 mm (10 1/4")
1725 mm (69")	275 mm (10 3/4")
1800 mm (72")	280 mm (11")
1950 mm (78")	300 mm (11 3/4")
2100 mm (84")	320 mm (12 1/2")
2250 mm (90")	335 mm (13 1/4")
2400 mm (96")	355 mm (14")
2550 mm (102")	395 mm (15 1/2")
2700 mm (108")	405 mm (16")
2850 mm (114")	420 mm (16 1/2")
3000 mm (120")	430 mm (17")
3150 mm (126")	430 mm (17")
3300 mm (132")	445 mm (17 1/2")
3450 mm (138")	445 mm (17 1/2")
3600 mm (144")	455 mm (18")

NOTES

1. VALUES FOR A, B, C, D_1, D_2, ELEVATION R AND ELEVATION S ARE SHOWN ON THE PROJECT DRAWINGS. ELEVATION S APPLIES AT INSIDE WALL OF STRUCTURE.

2. WHEN DEPTH M FROM STREET GRADE TO THE TOP OF THE BOX IS LESS THAN 867 mm (2'-10 1/2") FOR PAVED STREETS OR 1060 mm (3'-6") FOR UNPAVED STREETS, CONSTRUCT MONOLITHIC SHAFT PER SECTION C-C AND DETAIL "N". SHAFT FOR ANY DEPTH OF MANHOLE MAY BE CONSTRUCTED PER SECTION C-C. WHEN DIAMETER D_1 IS 1200 mm (48") OR LESS, CENTER OF SHAFT MAY BE LOCATED PER NOTE 3.

3. CENTER OF MANHOLE SHAFT SHALL BE LOCATED OVER CENTER LINE OF STORM DRAIN WHEN DIAMETER D_1 IS 1200 mm(48") OR LESS, IN WHICH CASE PLACE E BARS SYMMETRICALLY AROUND SHAFT AT 45° WITH CENTER LINE.

4. LENGTH OF MANHOLE MAY BE INCREASED AT OPTION TO MEET PIPE ENDS, BUT ANY CHANGE IN LOCATION OF SPUR MUST BE APPROVED BY THE ENGINEER.

5. P SHALL BE 125 mm (5") FOR D_2=2400 mm (96") OR LESS AND 200 mm (8") FOR D_2 OVER 2400 mm (96").

6. REINFORCEMENT SHALL CONFORM TO ASTM A 615M, GRADE 300(ASTM A 615, GRADE 40), AND SHALL TERMINATE 40 mm (1 1/2") CLEAR OF CONCRETE SURFACES UNLESS OTHERWISE SHOWN.

7. FLOOR OF MANHOLE SHALL BE STEEL TROWELED TO SPRING LINE.

8. BODY OF MANHOLE SHALL BE POURED IN ONE CONTINUOUS OPERATION EXCEPT THAT A CONSTRUCTION JOINT WITH A LONGITUDINAL KEYWAY MAY BE PLACED AT SPRING LINE.

9. THICKNESS OF THE DECK SHALL VARY WHEN NECESSARY TO PROVIDE A LEVEL SEAT BUT SHALL NOT BE LESS THAN THE TABULAR VALUES OF F SHOWN ON TABLE, SH. 1.

10. IF LATERALS ENTER ON BOTH SIDES OF MANHOLE, SHAFT SHALL BE LOCATED ON SIDE RECEIVING THE SMALLER LATERAL.

11. STEPS SHALL CONFORM TO STANDARD PLAN 635 OR 636. UNLESS OTHERWISE SHOWN, STEPS SHALL BE UNIFORMLY SPACED 350 mm (14") TO 375 mm (15") OC. THE LOWEST STEP SHALL NOT BE MORE THAN 600 mm (24") ABOVE THE INVERT.

12. THE FOLLOWING CRITERIA SHALL BE USED FOR THIS MANHOLE:

    A. THIS STANDARD PLAN IS USED WHEN STANDARD PLAN 320 IS INADEQUATE. MAIN LINE = 900 mm (36") INSIDE DIAMETER OR LARGER.

    B. LATERAL = 300 mm (12") TO 3600 mm (144") INSIDE DIAMETER: HOWEVER, THE INSIDE DIAMETER SHALL NOT EXCEED THE INSIDE DIAMETER OF THE MAIN LINE.

13. MANHOLE FRAME AND COVER SHALL CONFORM TO STANDARD PLAN 630 UNLESS OTHERWISE SHOWN.

14. MANHOLE SHAFT SHALL CONFORM TO STANDARD PLAN 324 UNLESS OTHERWISE SHOWN.

15. WHERE A MANHOLE SHAFT - 900 mm (36") WITHOUT REDUCER IS SPECIFIED REFER TO STANDARD PLAN 326.

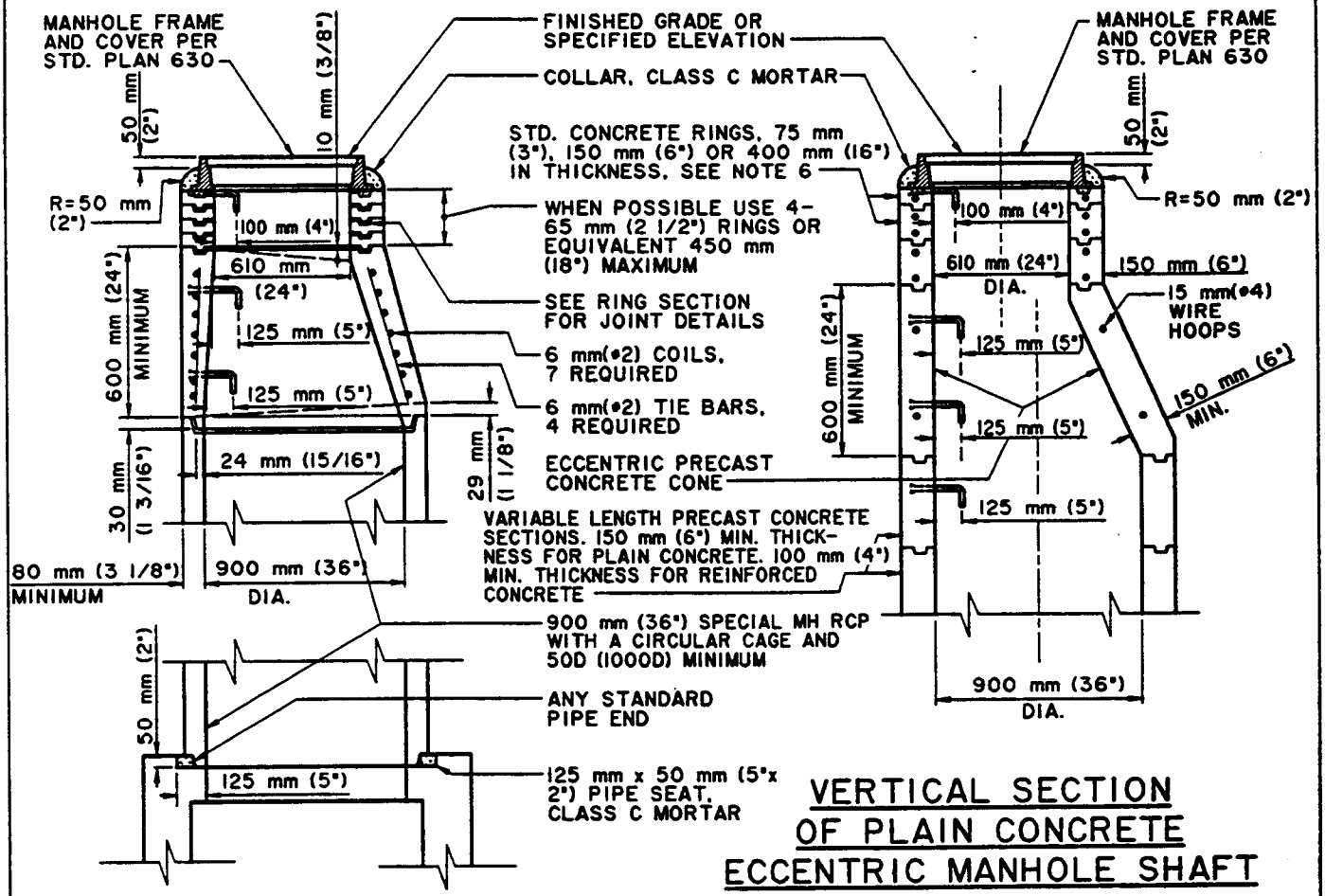
16. WHERE A PRESSURE MANHOLE SHAFT - WITH ECCENTRIC REDUCER IS SPECIFIED REFER TO STANDARD PLAN 328.

17. WHERE A PRESSURE MANHOLE SHAFT - 914 mm (36") WITHOUT IS SPECIFIED REFER TO STANDARD PLAN 329.

18. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACT EQUAL VALUES. IF METRIC VALUES ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES, EXCEPT REINFORCING BAR SIZES IN ENGLISH UNITS MAY BE SUBSTITUTED FOR METRIC BAR SIZES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH UNITS.

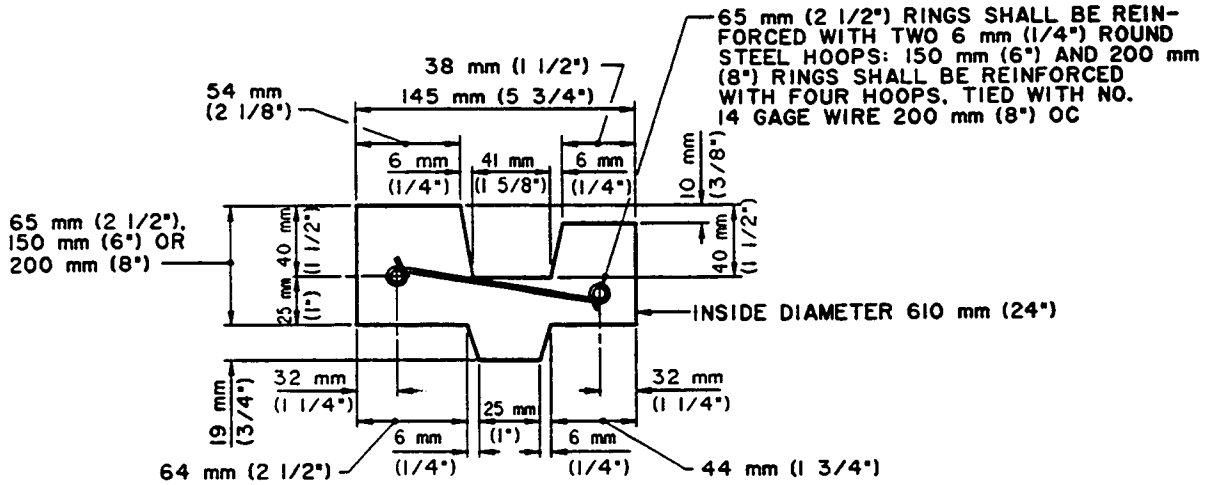
THE FOLLOWING STANDARD PLANS ARE INCORPORATED HEREIN:

324	MANHOLE SHAFT - WITH ECCENTRIC REDUCER
326	MANHOLE SHAFT - 900 mm (36") WITHOUT REDUCER
328	PRESSURE MANHOLE SHAFT - WITH ECCENTRIC
329	PRESSURE MANHOLE SHAFT - 914 mm (36") WITHOUT REDUCER
630	610 mm (24") MANHOLE FRAME AND COVER
633	914 mm (36") MANHOLE FRAME AND COVER
635	STEEL STEP
636	POLYPROPYLENE PLASTIC STEP



VERTICAL SECTION OF PLAIN CONCRETE ECCENTRIC MANHOLE SHAFT

VERTICAL SECTION OF REINFORCED CONCRETE ECCENTRIC MANHOLE SHAFT



CROSS SECTION OF REINFORCED CONCRETE RING

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1992 REV. 1996	**MANHOLE SHAFT WITH ECCENTRIC REDUCER**	STANDARD PLAN METRIC 324 - 1
	USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	SHEET 1 OF 2

NOTES

1. UNLESS OTHERWISE INDICATED THIS STRUCTURE SHALL CONFORM TO ASTM C 478M (ASTM C 478) AND ALL CONCRETE SHALL BE PER SSPWC.

2. MANHOLE FRAME AND COVER SHALL CONFORM TO STANDARD PLAN 630.

3. ALL JOINTS SHALL BE SEALED BY FILLING THE ANNULAR SPACES WITH CLASS C MORTAR. THE INSIDE OF THE SHAFT AT EACH JOINT SHALL BE WIPED CLEAN OF EXCESS MORTAR.

4. PROTECTIVE PLASTIC LINER (T LOCK) OR ENGINEER-APPROVED COATINGS WHERE REQUIRED BY THE PROJECT DRAWINGS SHALL BE IN ACCORDANCE WITH SSPWC AND THE MANUFACTURER'S DIRECTIONS.

5. STEPS SHALL CONFORM TO STANDARD PLAN 635 OR 636. THE TOP STEP SHALL BE PLACED DIRECTLY BENEATH THE MANHOLE FRAME. UNLESS OTHERWISE SHOWN, STEPS SHALL BE UNIFORMLY SPACED 350 mm (14") TO 375 mm (15") OC.

6. THE ECCENTRIC MANHOLE SHAFT REDUCER AND RINGS MAY BE PLAIN CONCRETE. FOR PLAIN CONCRETE SECTIONS THE MINIMUM THICKNESS SHALL BE 150 mm (6").

7. THE PRECAST CONCRETE MANHOLE STRUCTURES WILL BE INSPECTED BY THE ENGINEER WHO WILL INDICATE ACCEPTANCE FOR SHIPMENT TO THE JOB BY MARKING THE STRUCTURES WITH THE AGENCY'S STAMP.

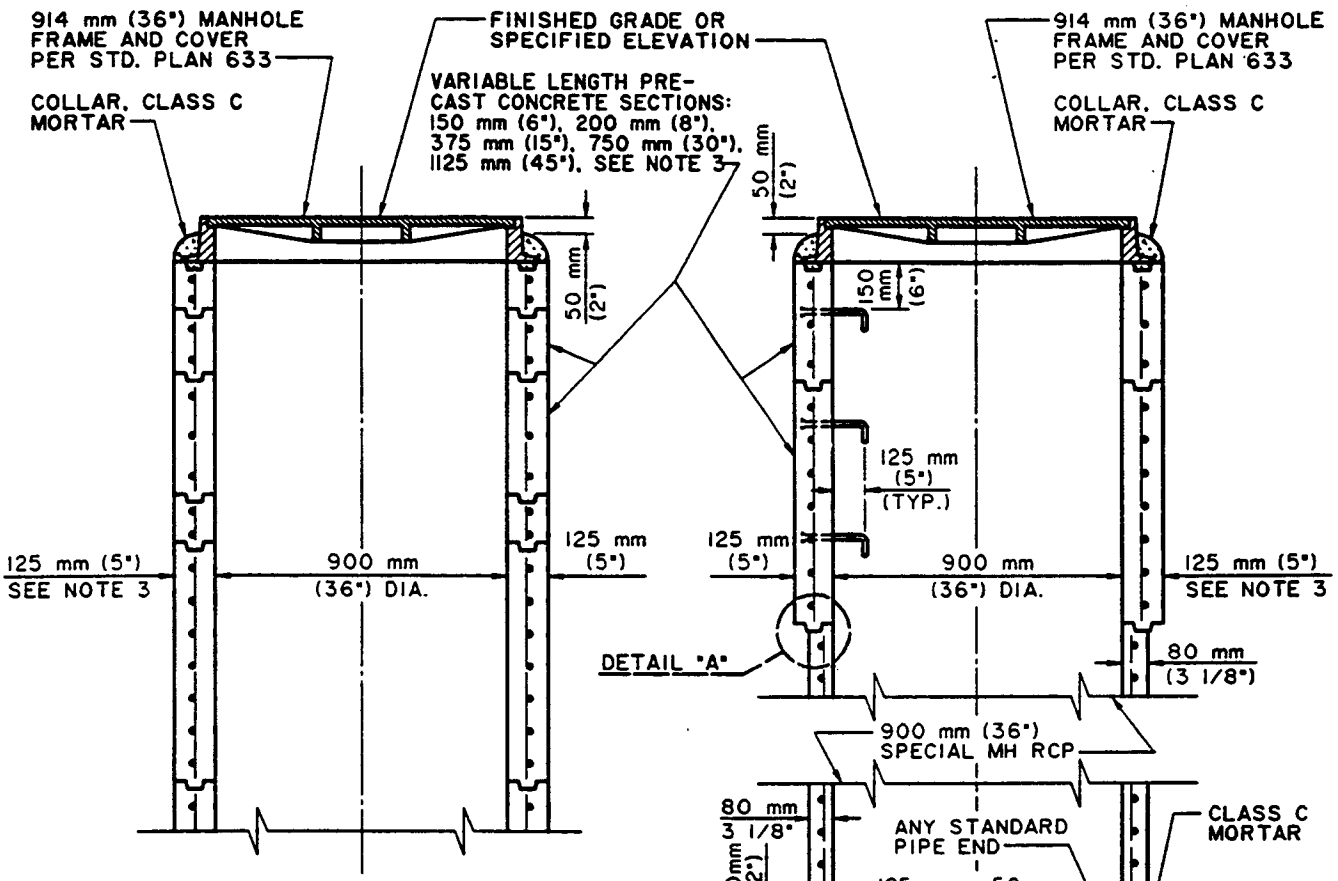
8. THE VERTICAL SIDES OF THE MANHOLE SHAFT AND THE ECCENTRIC REDUCER SHALL BE LOCATED ABOVE AND IN LINE WITH THE SIDE OF THE STORM DRAIN CONDUIT.

9. CONSTRUCT MANHOLE SAFETY LEDGE PER STD. PLAN 330 IF DEPTH OF MANHOLE TO INVERT IS GREATER THAN 6 m(20') AND MANHOLE SHAFT IS GREATER THAN 3 m(10'). WHEN SAFETY LEDGE IS REQUIRED AND MANHOLE SHAFT IS LESS THAN 4 m(12') STD. PLAN 326 MUST BE USED.

10. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACT EQUAL VALUES. IF METRIC VALUES ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES, EXCEPT REINFORCING BAR SIZES IN ENGLISH UNITS MAY BE SUBSTITUTED FOR METRIC BAR SIZES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH UNITS.

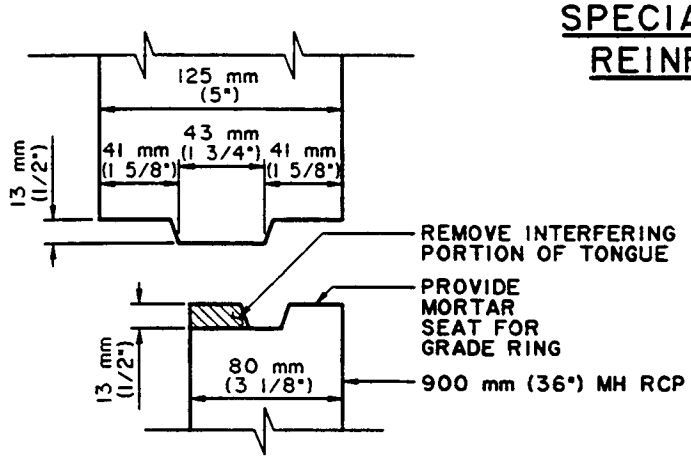
THE FOLLOWING STANDARD PLANS ARE INCORPORATED HEREIN:

630 610 mm (24") MANHOLE FRAME AND COVER
635 STEEL STEP
636 POLYPROPYLENE PLASTIC STEP



VERTICAL SECTION OF SPECIAL MANHOLE SHAFT WITH GRADE RING RISERS

VERTICAL SECTION OF SPECIAL MANHOLE SHAFT WITH REINFORCED CONCRETE PIPE



DETAIL "A"

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1992 REV. 1996	**MANHOLE SHAFT 900 mm (36") WITHOUT REDUCER** USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	STANDARD PLAN METRIC 326 - 1 SHEET 1 OF 2

NOTES

1. UNLESS OTHERWISE INDICATED THIS STRUCTURE SHALL CONFORM TO ASTM C 478M (ASTM C 478). ALL STEEL SHALL TERMINATE 40 mm (1 1/2") CLEAR OF CONCRETE SURFACES AND ALL CONCRETE SHALL BE PER SSPWC.

2. WHERE A 900 mm (36") MANHOLE IS CONSTRUCTED WITH 900 mm(36") MANHOLE RCP, THE RCP SECTION SHALL CONTAIN A CIRCULAR CAGE AND HAVE A LOAD CARRYING CAPACITY OF AT LEAST 50D(1000D). SPECIAL MANHOLE SHAFT SHALL BE PER THIS STANDARD AND 900 mm (36") MANHOLE FRAME AND COVER SHALL BE PER STANDARD PLAN 633.

3. THE MANHOLE SHAFT AND RINGS MAY BE PLAIN CONCRETE. FOR PLAIN CONCRETE SECTIONS THE MINIMUM THICKNESS SHALL BE 150 mm (6").

4. ALL JOINTS SHALL BE SEALED BY FILLING THE ANNULAR SPACES WITH CLASS C MORTAR. THE INSIDE OF THE SHAFT AT EACH JOINT SHALL BE WIPED CLEAN OF EXCESS MORTAR.

5. PROTECTIVE PLASTIC LINER (T LOCK) OR ENGINEER-APPROVED COATINGS WHERE REQUIRED BY THE PROJECT DRAWINGS SHALL BE IN ACCORDANCE WITH SSPWC AND THE MANUFACTURER'S DIRECTIONS.

6. STEPS SHALL CONFORM TO STANDARD PLAN 635 OR 636. THE TOP STEP SHALL BE PLACED 150 mm(6") BENEATH THE MANHOLE COVER FRAME. UNLESS OTHERWISE SHOWN, STEPS SHALL BE UNIFORMLY SPACED 350 mm (14") TO 375 mm (15") OC.

7. THE PRECAST CONCRETE MANHOLE STRUCTURES WILL BE INSPECTED BY THE ENGINEER WHO WILL INDICATE ACCEPTANCE FOR SHIPMENT TO THE JOB BY MARKING THE STRUCTURES WITH THE AGENCY'S STAMP.

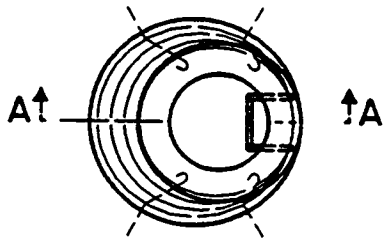
8. THE VERTICAL SIDES OF THE MANHOLE SHAFT SHALL BE LOCATED ABOVE AND IN LINE WITH THE SIDE OF THE STORM DRAIN CONDUIT.

9. CONSTRUCT MANHOLE SAFETY LEDGE PER STD. PLAN 330 IF DEPTH OF MANHOLE TO INVERT IS GREATER THAN 6 m(20') AND MANHOLE SHAFT IS GREATER THAN 3 m(10').

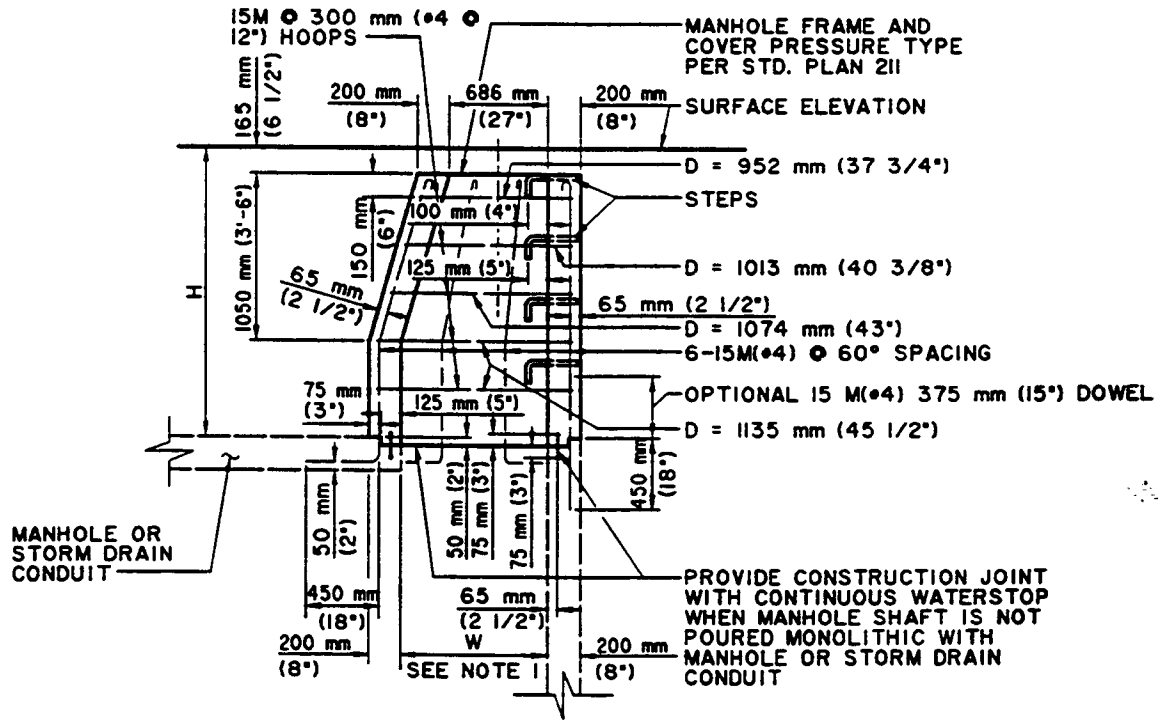
10. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACT EQUAL VALUES. IF METRIC VALUES ARE USED, EXCEPT ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES. REINFORCING BAR SIZES IN ENGLISH UNITS MAY BE SUBSTITUTED FOR METRIC BAR SIZES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH UNITS.

THE FOLLOWING STANDARD PLANS ARE INCORPORATED HEREIN:

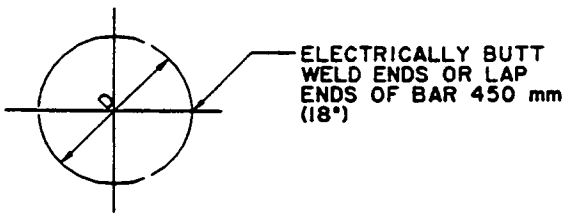
633 914 mm (36") MANHOLE FRAME AND COVER
635 STEEL STEP
636 POLYPROPYLENE PLASTIC STEP



PLAN



SECTION A-A



15M(@4) HOOP BARS

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER

PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1992 REV. 1996

PRESSURE MANHOLE SHAFT WITH ECCENTRIC REDUCER

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN METRIC 328 - 1

SHEET 1 OF 2

NOTES

1. IF H IS LESS THAN 450 mm (18"), W=675 mm (27")
   IF H IS BETWEEN 450 mm (18") AND 750 mm (2'-6"), W=750 mm (2'-6").
   IF H IS 750 mm (2'-6") OR MORE, W=900 mm (3'-0").
   IF H IS MORE THAN 1215 mm (4'-0 1/2"), BRING WALL VERTICALLY TO 1215 mm (4'-0 1/2") BELOW SURFACE AND TAPER FROM 900 mm (3'-0") TO 675 mm (27") AS SHOWN.

2. THIS STRUCTURE SHALL BE USED WITH MANHOLE FRAME AND COVER PRESSURE TYPE, STANDARD PLAN 211. IT MAY BE USED FOR HYDROSTATIC HEADS UP TO 7.5 m (25') ABOVE THE STEEL PLATE.

3. THE VERTICAL SIDE OF THE MANHOLE SHAFT AND THE ECCENTRIC REDUCER SHALL BE LOCATED ABOVE AND IN LINE WITH THE SIDE OF THE STORM DRAIN CONDUIT.

4. REINFORCEMENT SHALL CONFORM TO ASTM A 615M, GRADE 300(ASTM A 615, GRADE 40), AND SHALL TERMINATE 40 mm (1 1/2") CLEAR OF CONCRETE SURFACES UNLESS OTHERWISE SHOWN.

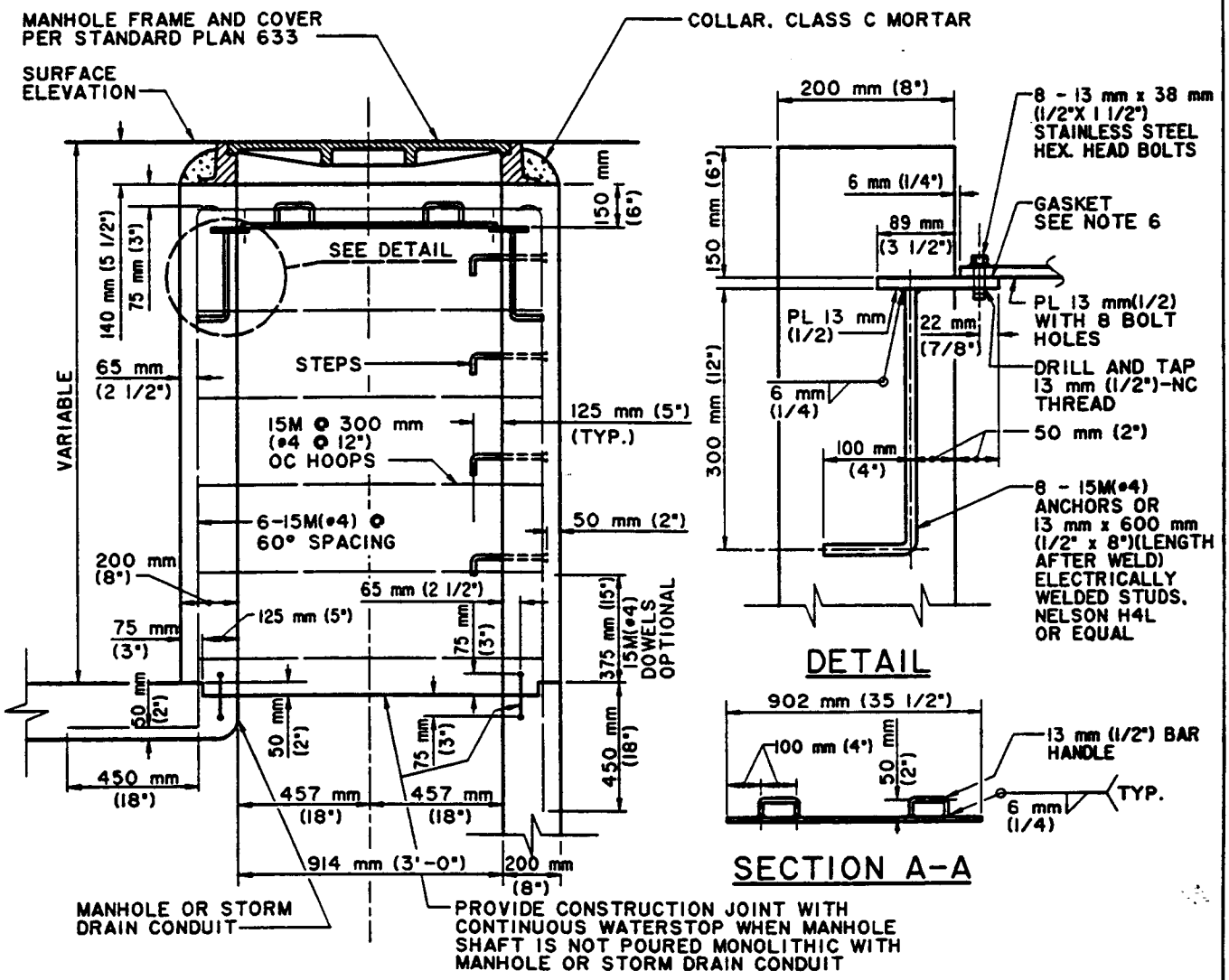
5. STEPS SHALL CONFORM TO STANDARD PLAN 635 OR 636. THE TOP STEP SHALL BE PLACED DIRECTLY BENEATH THE MANHOLE FRAME. UNLESS OTHERWISE SHOWN, STEPS SHALL BE UNIFORMLY SPACED 350 mm (14") TO 375 mm (15") OC.

6. SEE CONTRACT SPECIFICATIONS FOR PHYSICAL REQUIREMENTS OF WATERSTOP.

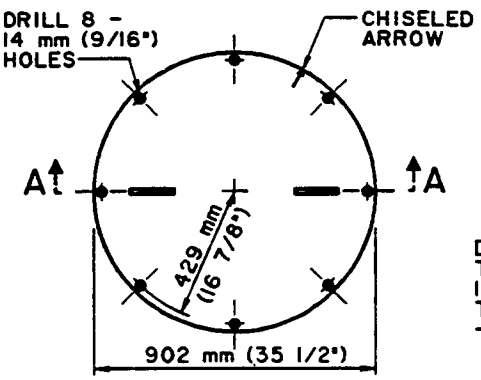
7. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACT EQUAL VALUES. IF METRIC VALUES ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES, EXCEPT REINFORCING BAR SIZES IN ENGLISH UNITS MAY BE SUBSTITUTED FOR METRIC BAR SIZES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH UNITS.

   THE FOLLOWING STANDARD PLANS ARE INCORPORATED HEREIN:

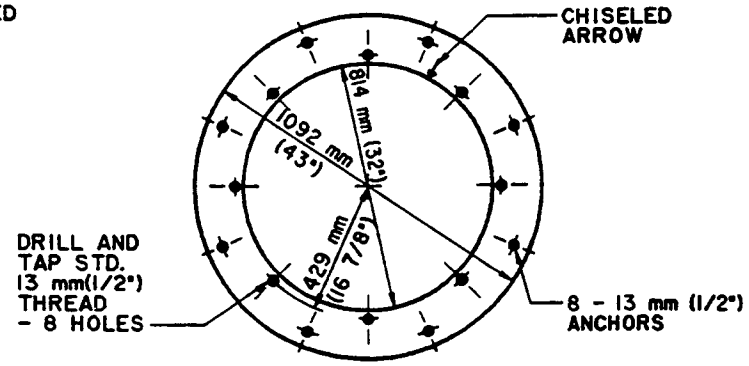
   211 MANHOLE FRAME AND COVER PRESSURE TYPE
   635 STEEL STEP
   636 POLYPROPYLENE PLASTIC STEP



VERTICAL SECTION OF SPECIAL PRESSURE MANHOLE SHAFT



PLAN
PRESSURE PLATE



PLAN
PRESSURE PLATE RING

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1992 REV. 1996	**PRESSURE MANHOLE SHAFT AND PRESSURE PLATE DETAIL 914mm (36") WITHOUT REDUCER** USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	STANDARD PLAN METRIC 329 - 1 SHEET 1 OF 2

NOTES

1. THIS STRUCTURE MAY BE USED FOR HYDROSTATIC HEADS UP TO 7.5 m (25') ABOVE THE PRESSURE PLATE.

2. 914 mm (36") MANHOLE FRAME AND COVER PER STANDARD PLAN 633 SHALL BE USED.

3. REINFORCEMENT SHALL BE PER ASTM A 615, GRADE 40 AND SHALL TERMINATE 40 mm (1 1/2") CLEAR OF CONCRETE SURFACES UNLESS OTHERWISE SHOWN. HOOPS MAY BE ELECTRICALLY BUTT WELDED OR THE ENDS LAPPED 450 mm (18").

4. THE MANHOLE SHAFT SHALL BE LOCATED ABOVE AND IN LINE WITH THE SIDE OF THE CONDUIT BELOW.

5. STEPS SHALL CONFORM TO STANDARD PLAN 635 OR 636. UNLESS OTHERWISE SHOWN, STEPS SHALL BE UNIFORMLY SPACED 350 mm (14") TO 375 mm (15") OC.

6. GASKET MATERIAL SHALL BE NEOPRENE (OR EQUAL) 2 mm (1/16") THICK BY 32 mm (1 1/4") WIDE.

7. BOLTS SHALL BE STAINLESS STEEL CONFORMING TO ASTM A 320M (ASTM A 320), GRADE B8.

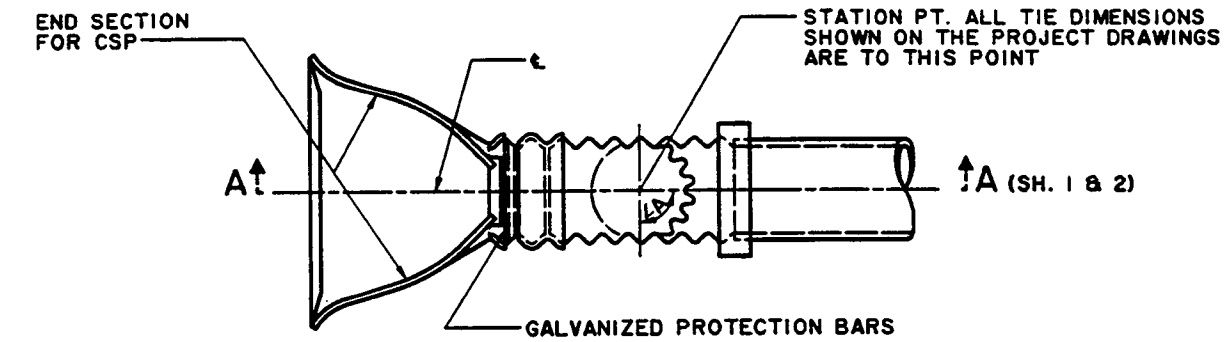
8. PRESSURE PLATE AND PRESSURE PLATE RING SHALL BE STEEL CONFORMING TO ASTM A 36M (ASTM A 36) AND SHALL BE GALVANIZED. PLATES SHALL BE MARKED IN SETS AND A CHISELED ARROW STAMPED ON BOTH PLATES, AFTER DRILLING AND TAPPING, TO FACILITATE FIELD ASSEMBLY.

9. SEE CONTRACT SPECIFICATIONS FOR PHYSICAL REQUIREMENTS OF WATERSTOP.

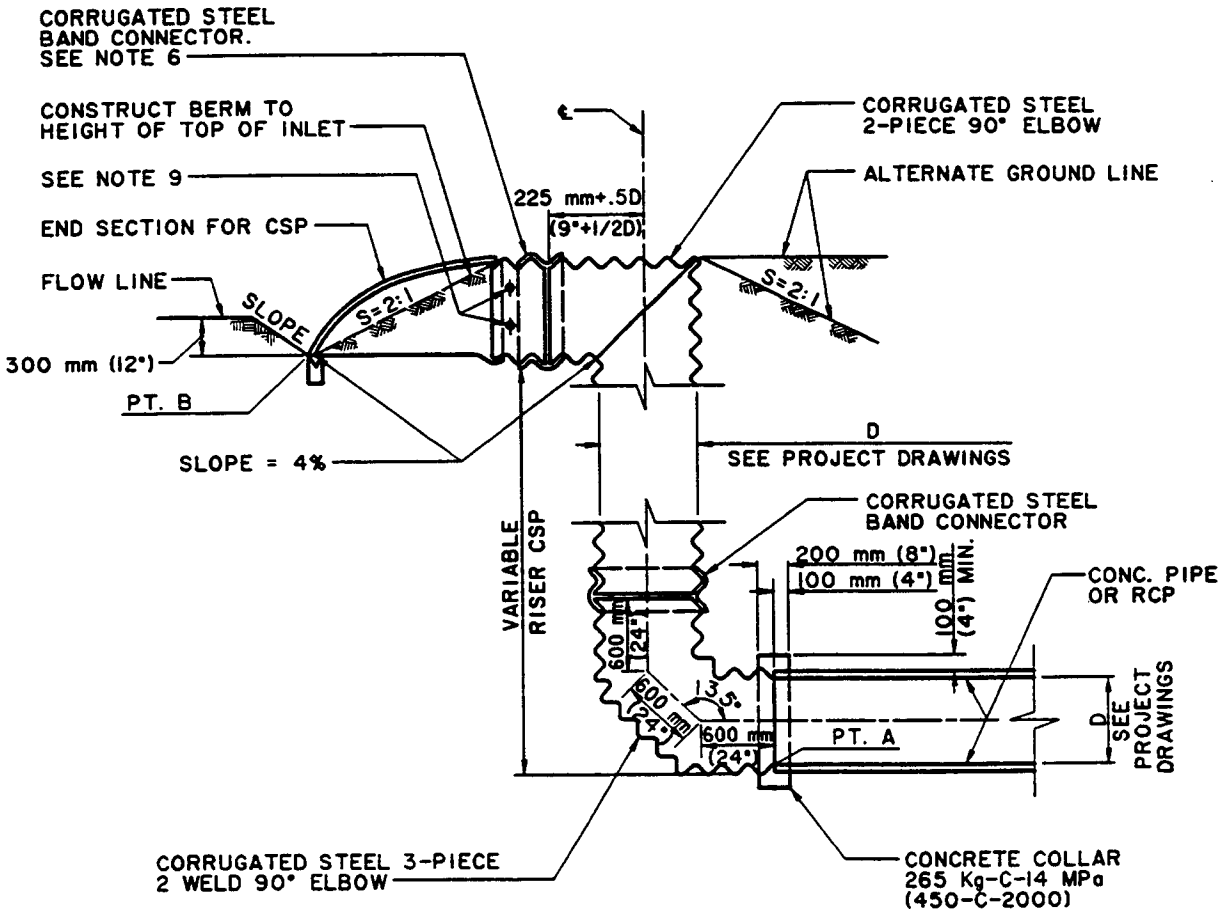
10. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACT EQUAL VALUES. IF METRIC VALUES ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES, EXCEPT REINFORCING BAR SIZES IN ENGLISH UNITS MAY BE SUBSTITUTED FOR METRIC BAR SIZES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH UNITS.

THE FOLLOWING STANDARD PLANS ARE INCORPORATED HEREIN:

633	914 mm (36") MANHOLE FRAME AND COVER
635	STEEL STEP
636	POLYPROPYLENE PLASTIC STEP



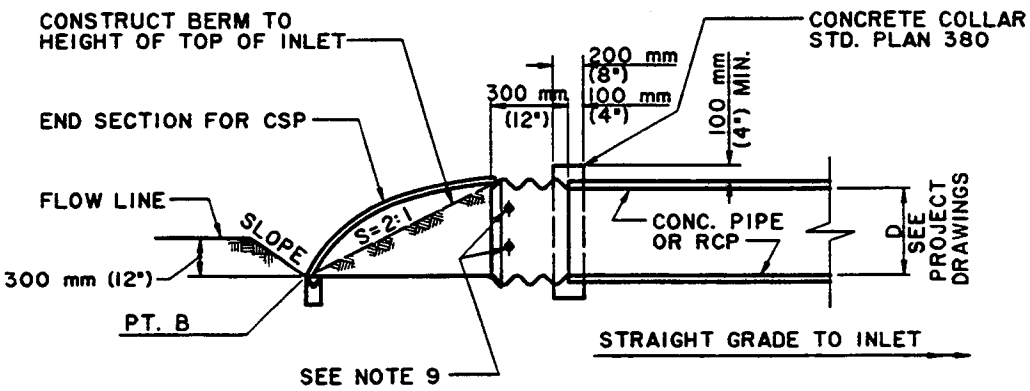
PLAN



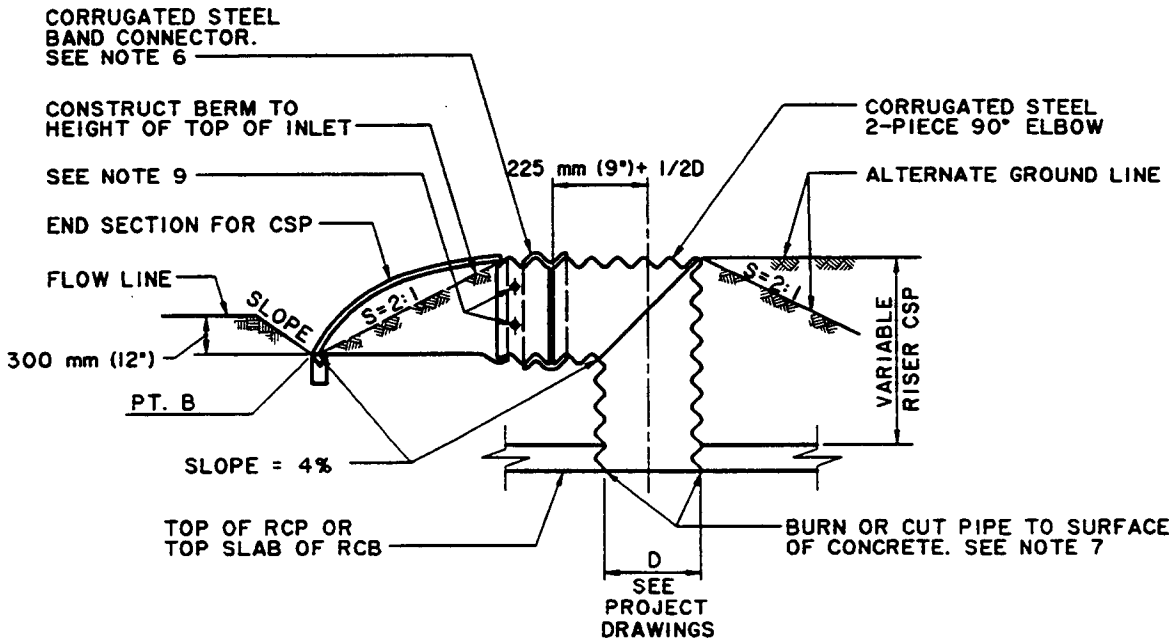
CASE 1
SECTION A-A

NOTE:
FOR CASE 2 & 3, SEE SH. 2.

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1984 REV. 1996	**CSP FLARED INLET**	STANDARD PLAN METRIC 351 - 1
	USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	SHEET 1 OF 3



CASE 2
SECTION A-A (SH. 1)

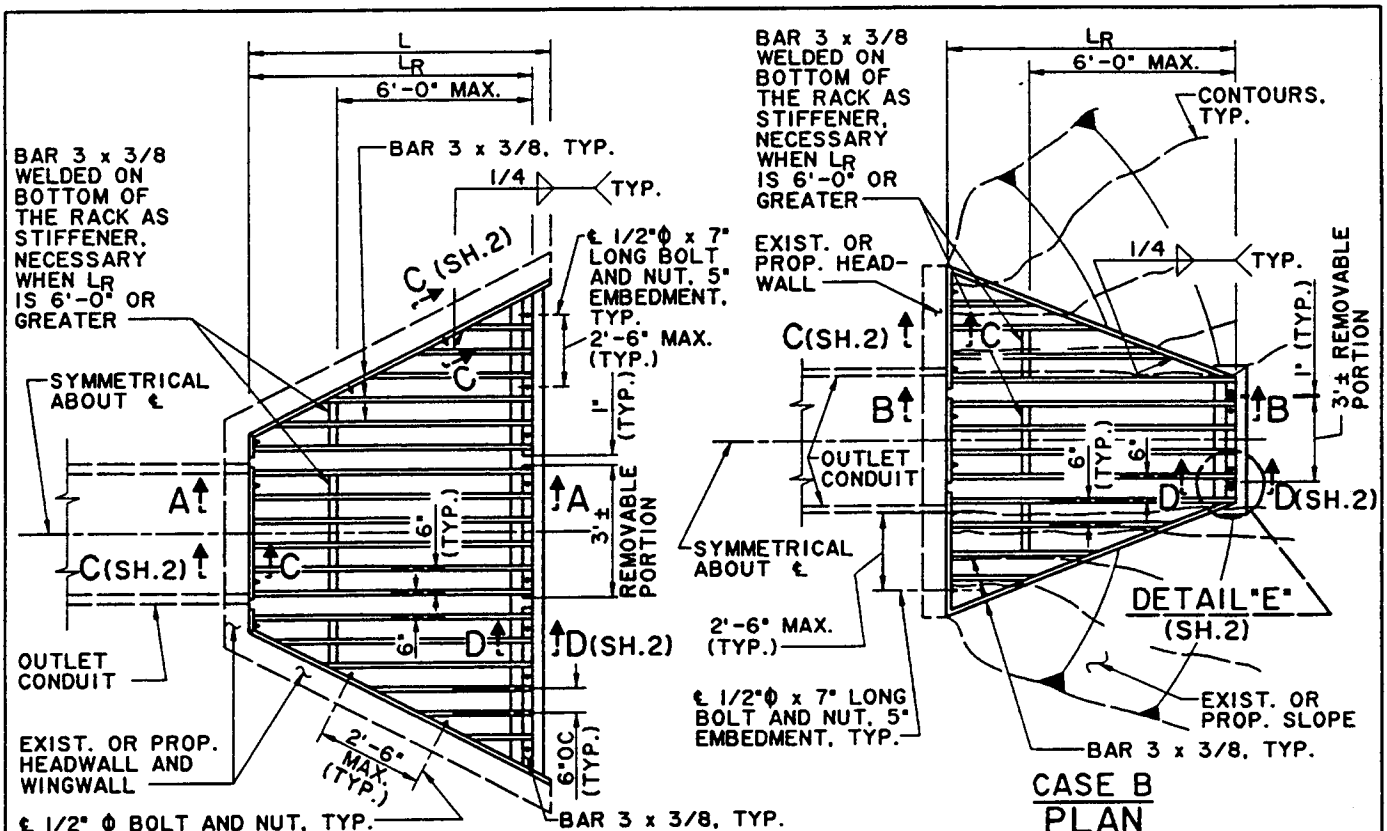


CASE 3
SECTION A-A (SH. 1)

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER	STANDARD PLAN METRIC 351 - 1 SHEET 2 OF 3
CSP FLARED INLET	

NOTES

1. ANGLE A MAY BE ANY ANGLE AS REQUIRED.
2. ELEVATION OF POINT A SHOWN ON PROJECT DRAWINGS.
3. POINT B SHALL BE PLACED 300 mm (12") BELOW THE FLOW LINE OF EXISTING DITCH UNLESS OTHERWISE SPECIFIED ON PROJECT DRAWINGS. SLOPE SHALL BE SET IN FIELD BY THE ENGINEER.
4. THE HEIGHT OF THE RISER FOR CASE 1 & 3 SHALL VARY AS DETERMINED BY THE ELEVATION OF POINTS A & B, OR BY THE TOP OF STORM DRAIN CONDUIT AND ELEVATION OF POINT B.
5. CORRUGATED STEEL BAND CONNECTOR IS NOT REQUIRED FOR INLET SIZES 600 mm (24") DIAMETER OR LESS.
6. IN ALL CASES, CONNECTION TO THE STORM DRAIN CONDUIT SHALL BE IN ACCORDANCE WITH THE APPLICABLE JUNCTION STRUCTURE, TRANSITION STRUCTURE, OR MANHOLE.
7. ALL CSP AND FITTINGS SHALL BE GALVANIZED.
8. PUNCH HOLES IN CSP AND WELD 20 mm (3/4") GALVANIZED BARS HORIZONTALLY IN PLACE ACROSS OPENING.
9. COAT WELDED, CUT AND ABRADED SURFACES AS SPECIFIED IN SUB-SECTION 210-3.5 OF THE SSPPWC.
10. INLET SHALL NOT BE USED IN WATER COURSES SUBJECT TO DEBRIS FLOWS. A STRUCTURE HAVING A PROTECTION BARRIER SHOULD BE USED.
11. END SECTION MAY BE ARMCO STANDARD END SECTION, BETHLEHEM STEEL CO. FLARED END SECTION FOR CSP, OR AN AGENCY APPROVED EQUAL.
12. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACT EQUAL VALUES. IF METRIC VALUES ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH UNITS.



AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER

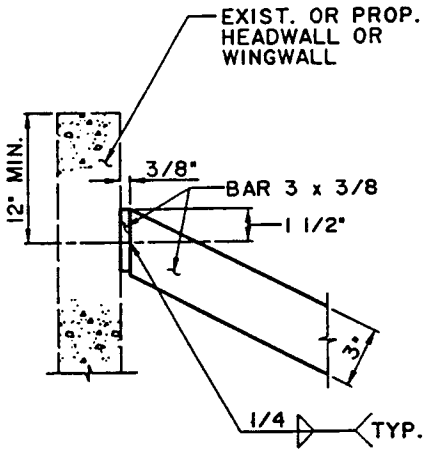
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1993

TRASH RACK (INCLINED)

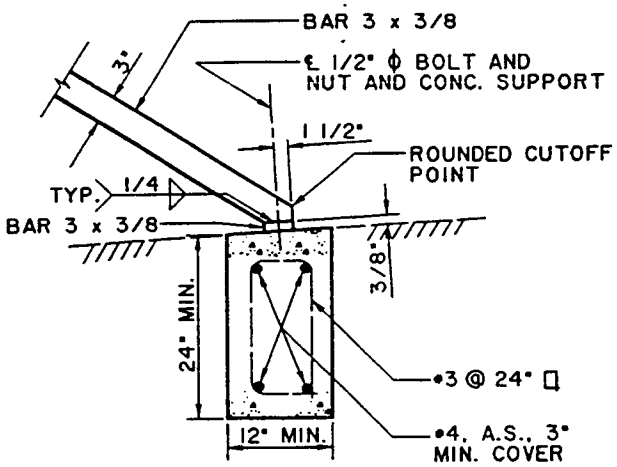
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN 361 - 0

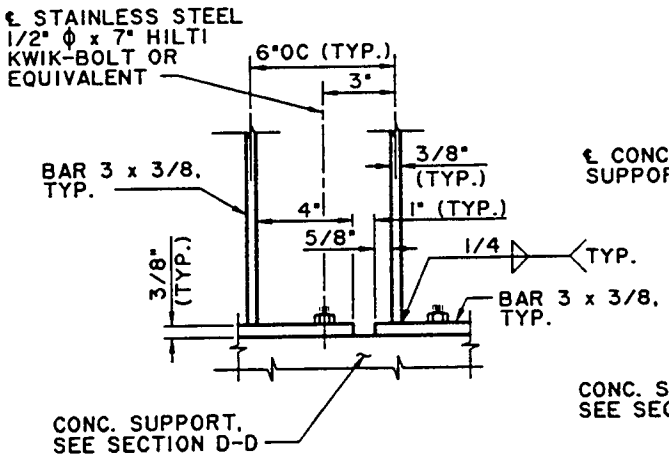
SHEET 1 OF 3



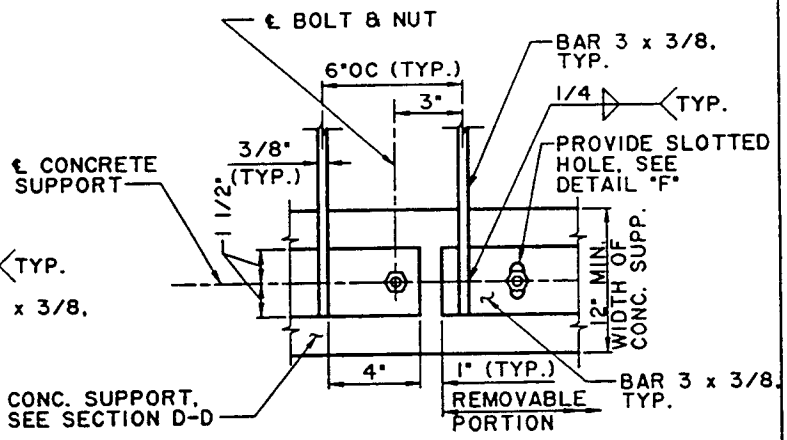
SECTION C-C (SH. 1)



SECTION D-D (SH. 1)

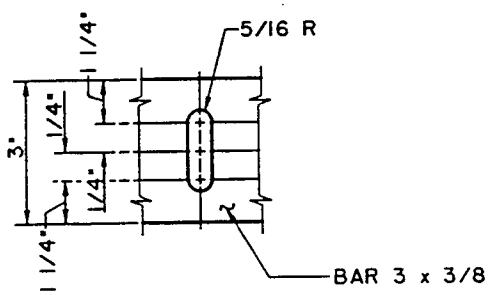


ELEVATION



PLAN

DETAIL "E" (SH. 1)

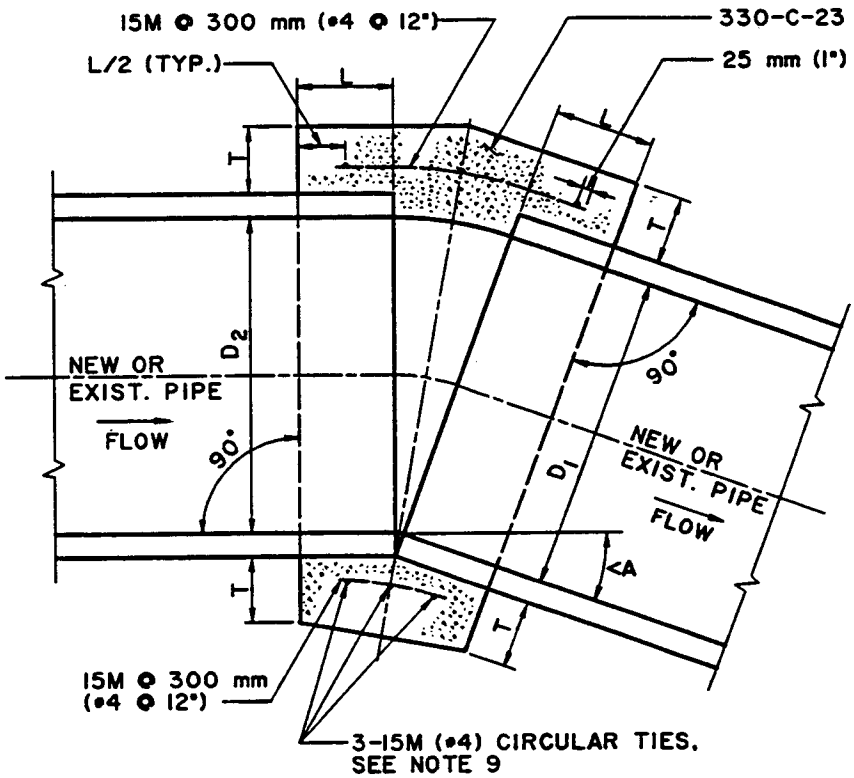


DETAIL "F" (SH. 1)
APPLIES TO THE TOP AND BOTTOM
BARS OF THE REMOVABLE PORTION ONLY

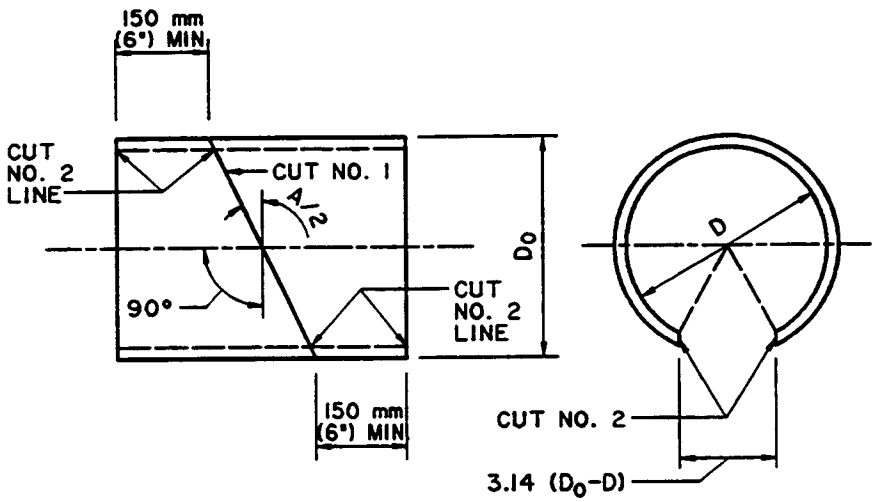
AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER	STANDARD PLAN 361 - 0 SHEET 2 OF 3
TRASH RACK (INCLINED)	

NOTES

1. MAXIMUM SIZE OF OUTLET TO BE USED WITH THIS RACK IS 48" PIPE OR 48" WIDE RCB. MAXIMUM LENGTH OF RACK L_R IS 10'-0".
2. L_R CAN BE ADJUSTED SO THAT THE SLOPE OF THE RACK IS APPROXIMATELY 2 HORIZONTAL TO 1 VERTICAL.
3. THE CONCRETE SUPPORT IS NOT NECESSARY IF EXISTING OR PROPOSED INLET STRUCTURE HAS ADEQUATE SUPPORT CUTOFF WALL. IT DOES NOT ELIMINATE THE NEED FOR A CUTOFF WALL BUT CAN BE INTEGRATED WITH ONE WHEN REQUIRED AT A PARTICULAR INSTALLATION.
4. GALVANIZE ALL EXPOSED FERROUS PARTS AFTER FABRICATION.
5. IF FIELD WELDS ARE NECESSARY, USE GALVICON, GALVALLOY OR AGENCY APPROVED EQUAL FOR COATING.
6. ALL BOLTS SHALL BE 1/2" IN DIAMETER AND 7" IN LENGTH. ON REMOVABLE PORTION OF THE RACK, USE 300 SERIES STAINLESS STEEL BOLTS AND NUTS. FOR WINGWALL BOLTS FOR CASE A, AND WHERE HEADWALL AND WINGWALL ARE EXISTING, HILTI KWIK-BOLT OR EQUIVALENT CAN BE USED.

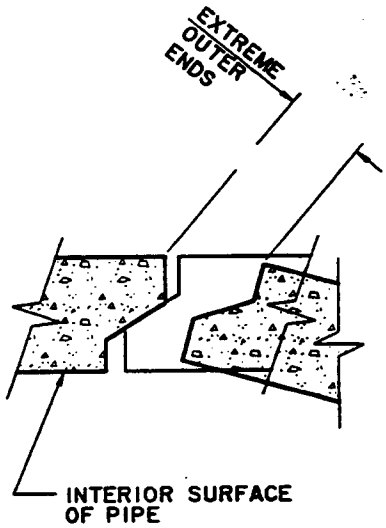


D	L	T
300 mm (12")	300 mm (12")	100 mm (4")
450 mm (18")	300 mm (12")	125 mm (5")
600 mm (24")	300 mm (12")	150 mm (6")
750 mm (30")	450 mm (18")	175 mm (7")
900 mm (36")	450 mm (18")	225 mm (9")
1050 mm (42")	450 mm (18")	225 mm (9")
1200 mm (48")	450 mm (18")	250 mm (10")
1425 mm (57")	450 mm (18")	250 mm (10")
1500 mm (60")	525 mm (21")	275 mm (11")
1650 mm (66")	525 mm (21")	275 mm (11")
1800 mm (72")	600 mm (24")	300 mm (12")



DETAIL "A" (SEE NOTE 10)

SONO-TUBE, OR EQUAL, INTERIOR FORM



DETAIL "B"

TYPICAL JOINT FOR REINFORCED CONCRETE PIPE

CUT NO. 1: SAW THE TUBE AT AN ANGLE OF A/2 WITH THE TRANSVERSE PLANE. REVERSE ONE SECTION AND TAPE BOTH SECTIONS TOGETHER FORMING THE DEFLECTION ANGLE A.

CUT NO. 2: SAW THE TUBE LONGITUDINALLY REMOVING A STRIP 3.14 (D_O-D) WIDE ON THE SIDE OPPOSITE THE OPEN JOINT. BEND THE ENDS OF THE CUT TOGETHER AND INSERT THE TUBE IN THE PIPE.

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER

PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1992 REV. 1996

CONCRETE COLLAR FOR RCP 300 mm (12") THROUGH 1800 mm (72")

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN METRIC 380 - 2

SHEET 1 OF 2

NOTES

1. A CONCRETE COLLAR IS REQUIRED WHERE THE CHANGE IN GRADE EXCEEDS 10 PERCENT.

2. FOR CURVE JOINTS (SEE DETAIL B. SHEET 1)

   IF THE EXTREME ENDS OF THE PIPE LEAVE A CLEAR SPACE THAT IS GREATER THAN 25 mm (1"), BUT IS LESS THAN 75 mm((3") A CONCRETE COVER IS REQUIRED IN ACCORDANCE WITH SUBSECTION 306-1.2.4 OF THE SSPWC.

   IF THE EXTREME ENDS OF THE PIPE LEAVE A CLEAR SPACE THAT IS EQUAL TO OR GREATER THAN 75 mm (3"), BUT LESS THAN 150 mm (6"), A CONCRETE COLLAR IS REQUIRED. IF THE CLEAR SPACE IS 150 mm (6") OR GREATER, A TRANSITION STRUCTURE IS REQUIRED.

3. CONCRETE COLLAR SHALL NOT BE USED FOR A SIZE CHANGE ON THE MAIN LINE.

4. CONNECTOR PIPES

   A. WHERE PIPES OF DIFFERENT DIAMETERS ARE JOINED WITH A CONCRETE COLLAR, L AND T SHALL BE THOSE OF THE LARGER PIPE. $D=D_1$ OR D_2, WHICHEVER IS GREATER.

   B. WHEN D_1 IS EQUAL TO OR LESS THAN D_2, JOIN INVERTS AND WHEN D_1 IS GREATER THAN D_2, JOIN SOFFITS.

5. FOR PIPE LARGER THAN 1800 mm (72") SPECIAL COLLAR DETAILS ARE REQUIRED.

6. FOR PIPE SIZE NOT LISTED USE NEXT SIZE LARGER.

7. REINFORCEMENT SHALL CONFORM TO ASTM A 615 M (A 615) GRADE 300(40).

8. WHERE REINFORCING IS REQUIRED THE DIAMETER OF THE CIRCULAR TIES SHALL BE D+(2X WALL THICKNESS) + T.

9. REINFORCING SHALL BE USED WHERE THE PIPE DIAMETER IS GREATER THAN 525 mm (21") AND ON ALL PIPES WHERE THE SPACES BETWEEN THE EXTREME OUTER ENDS IS 75 mm (3") OR LARGER.

CIRCULAR TIES:

PIPE DIAMETER	NO. OF CIRCULAR TIES
525 mm (21") OR LESS	3
600 mm (24") TO 750 mm (30")	3
825 mm (33") TO 1425 mm (57")	4
1500 mm (60") TO 1800 mm (72")	5

WHERE THE SPACE BETWEEN PIPE ENDS EXCEEDS 75 mm (3"). THE NUMBER OF CIRCULAR TIES SHALL BE INCREASED TO MAINTAIN AN APPROXIMATE SPACING OF 150 mm (6") O.C.

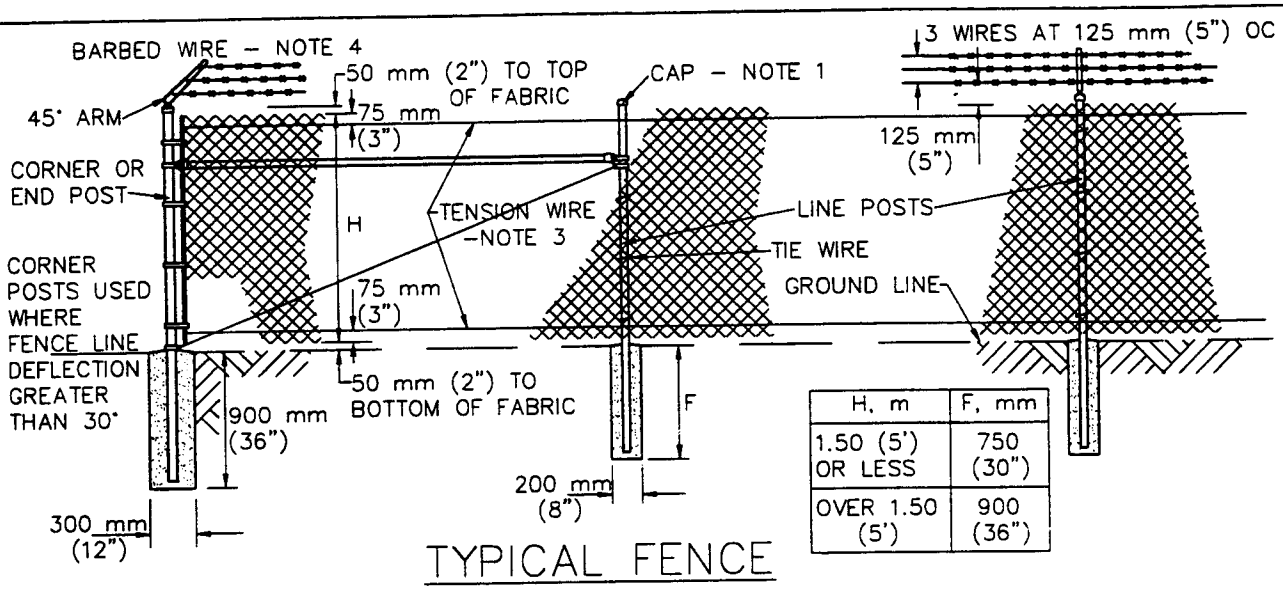
10. WHERE THE PIPE IS 525 mm (21") OR LESS IN DIAMETER AN INTERIOR FORM OF UNSEALED SONO-TUBE OR EQUAL SHALL BE USED TO PROVIDE A SMOOTH INTERIOR JOINT. THE PAPER FORM MAY BE LEFT IN PLACE (SEE DETAIL A). WHEN THE PIPE IS 600 mm (24") OR LARGER A REMOVABLE INTERIOR FORM SHALL BE USED OR THE INTERIOR JOINT SHALL BE COMPLETELY FILLED WITH MORTAR AND NEATLY POINTED.

11. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACT EQUAL VALUES. IF METRIC VALUES ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES, EXCEPT REINFORCING BAR SIZES IN ENGLISH UNITS MAY BE SUBSTITUTED FOR METRIC BAR SIZES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH UNITS.

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER

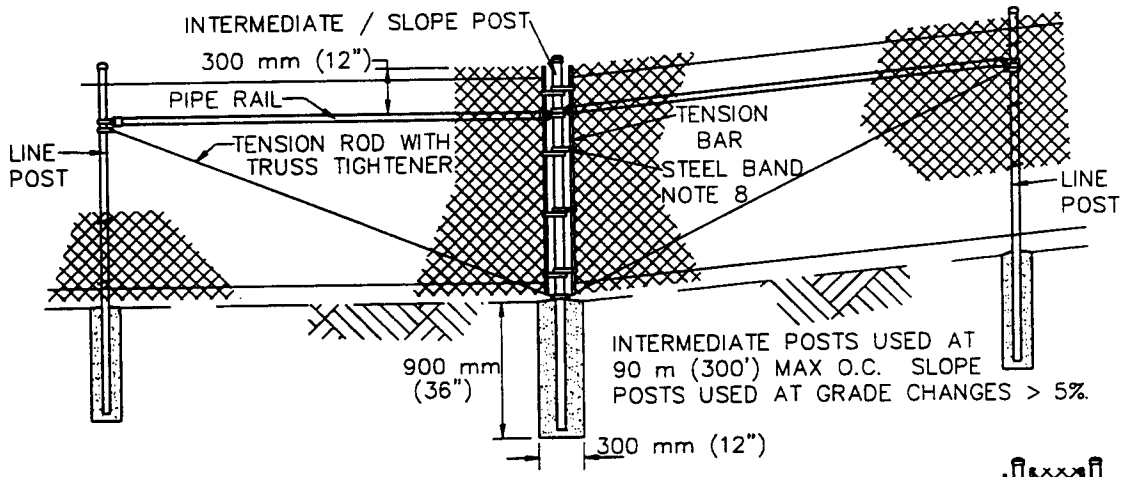
CONCRETE COLLAR FOR RCP 300 mm (12") THROUGH 1800 mm (72")

STANDARD PLAN METRIC
380 - 2
SHEET 2 OF 2

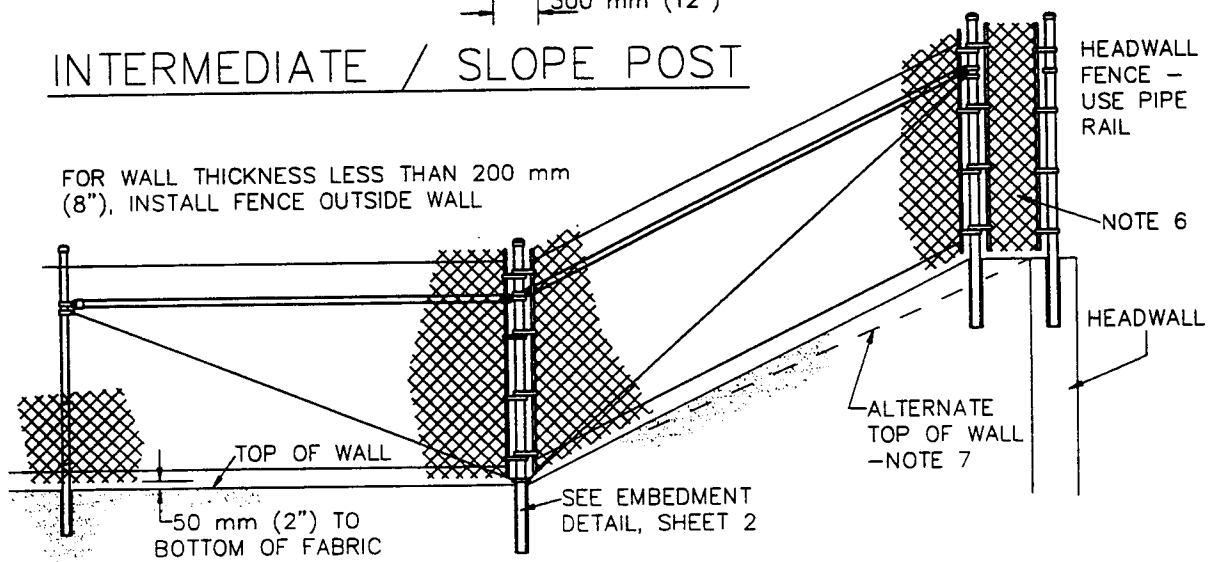


H, m	F, mm
1.50 (5') OR LESS	750 (30")
OVER 1.50 (5')	900 (36")

TYPICAL FENCE



INTERMEDIATE / SLOPE POST



CHANNEL WALL AND WINGWALL AT HEADWALL

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER

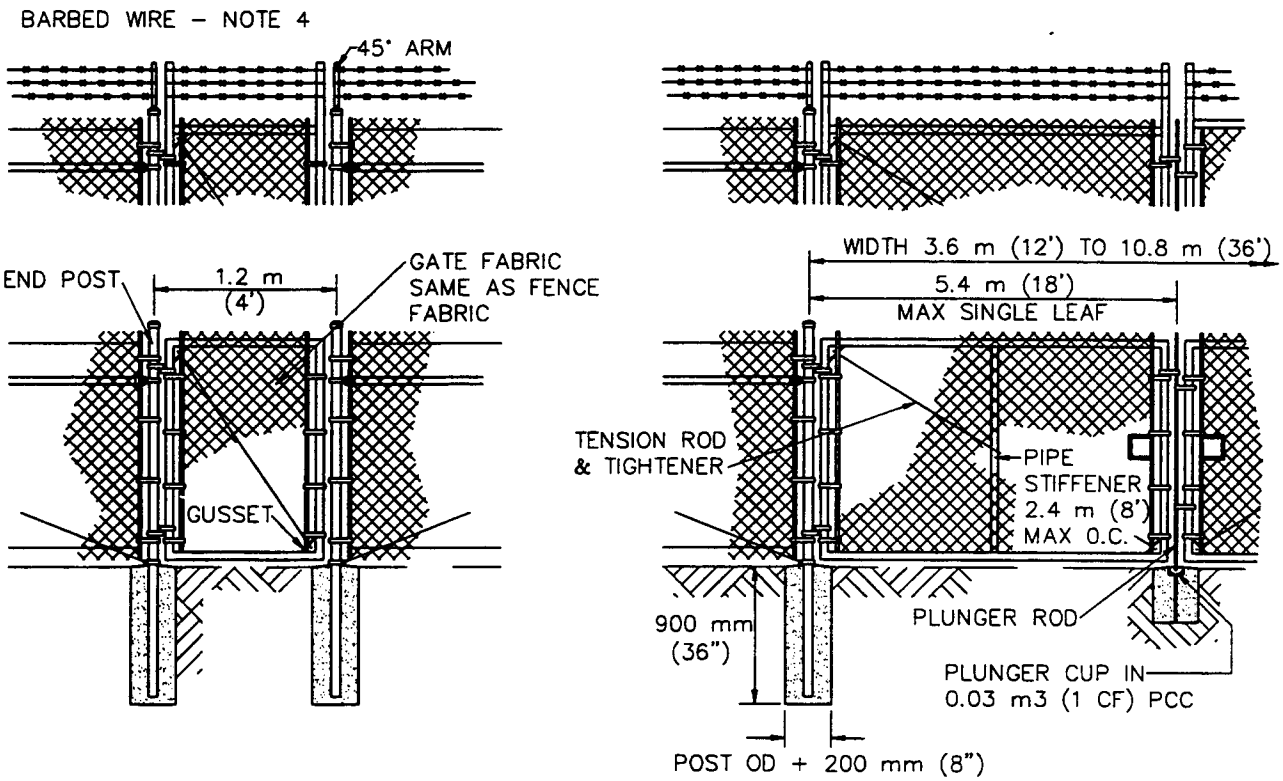
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1984 REV. 1996

CHAIN LINK FENCE AND GATES

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

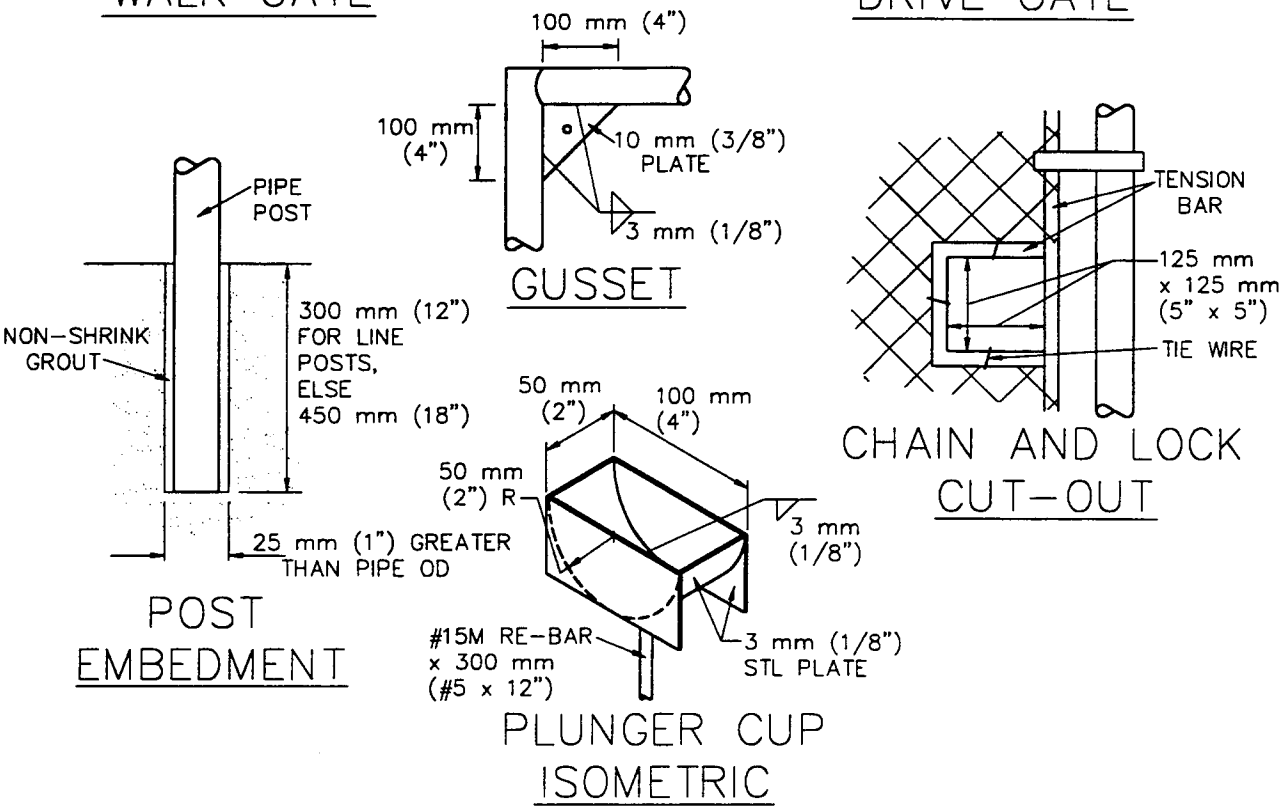
STANDARD PLAN METRIC 600 - 1

SHEET 1 OF 3



WALK GATE

DRIVE GATE



GUSSET

POST EMBEDMENT

PLUNGER CUP ISOMETRIC

CHAIN AND LOCK CUT–OUT

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER	STANDARD PLAN METRIC 600 - 1 SHEET 2 OF 3
CHAIN LINK FENCE AND GATES	

NOTES:

1. SECURE DRIVE–FIT GALVANIZED CAP TO POST WITH 6 mm (1/4") ROUND–HEAD RIVET.

2. H DENOTES FABRIC WIDTH AND NOMINAL FENCE HEIGHT. H = 1.5 m (5') UNLESS OTHERWISE NOTED.

3. IF FENCE WITH TOP RAIL IS SPECIFIED, DELETE STEEL TENSION WIRE AT TOP, AND PIPE RAILS AT INTERMEDIATE, SLOPE, END AND CORNER POSTS. EXTEND TENSION ROD TO TOP RAIL.

4. BARBED WIRE SHALL BE USED ONLY WHEN SPECIFIED.

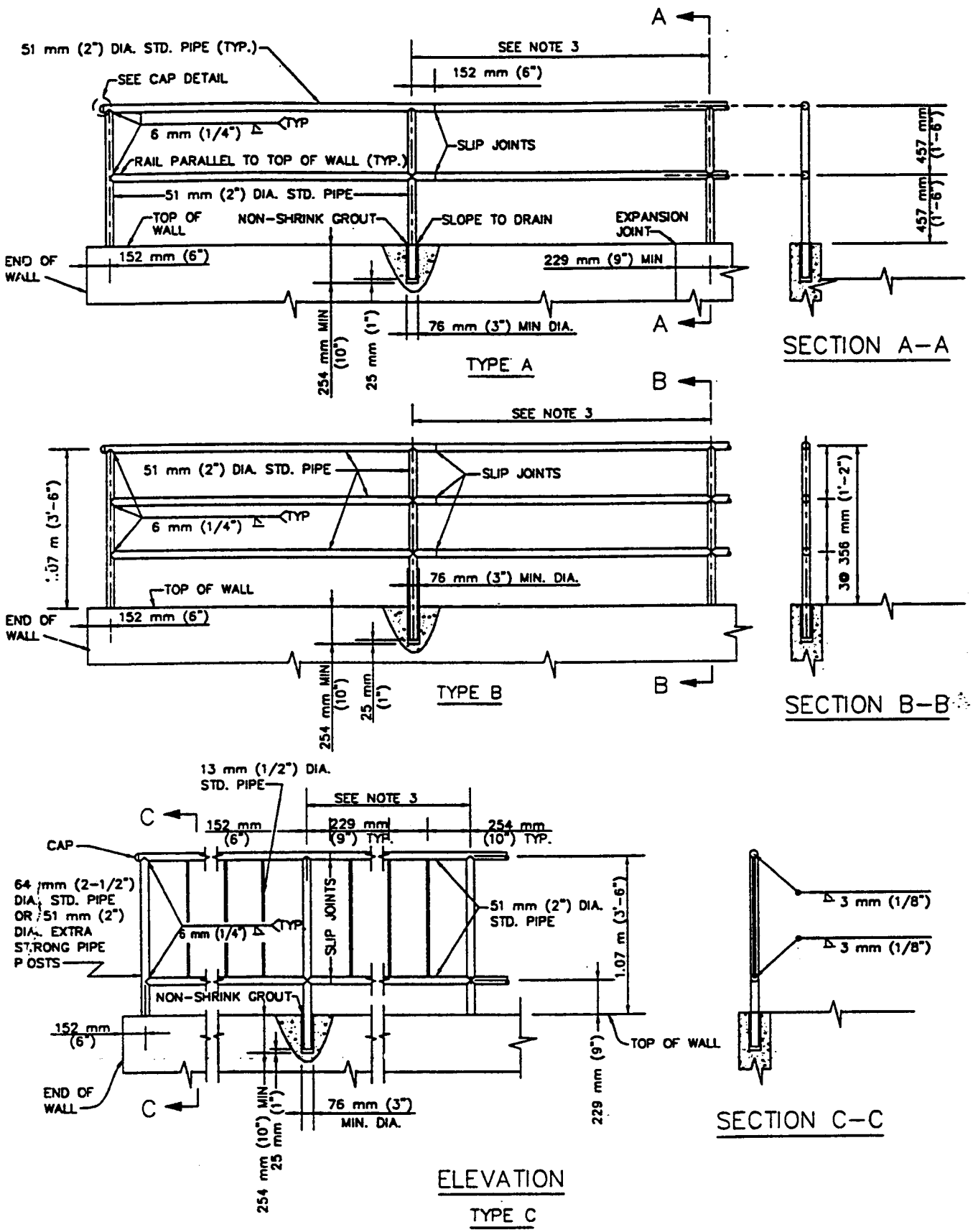
5. POST SPACING IS MAXIMUM 3.0 m (10').

6. FILL CLEAR OPENINGS GREATER THAN 75 mm (3") WITH FABRIC. FOR OPENINGS LESS THAN 450 mm (18"), TIE FABRIC TO POSTS.

7. USE ONE POST FOR COMBINED SLOPE AND CORNER POST IF TOP OF CHANNEL WALL IS CONSTRUCTED AS SHOWN FOR "ALTERNATE".

8. STEEL BANDS AT TENSION BARS SHALL BE 3 mm X 25 mm (1/8" x 1"), MINIMUM, SPACED AT MAXIMUM 400 mm (16").

9. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACTLY EQUAL VALUES. IF METRIC UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH VALUES. HOWEVER, ASTM 615 REINFORCING STEEL MAY BE SUBSTITUTED FOR ASTM 615M STEEL.



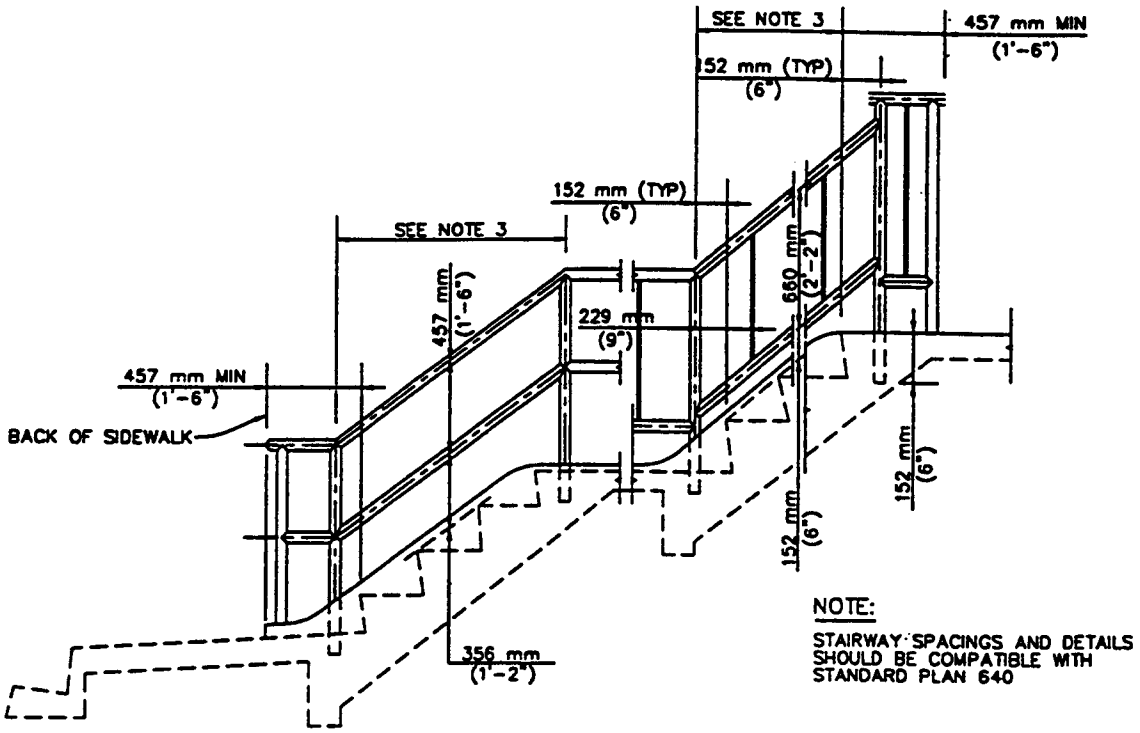
AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER

PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1996

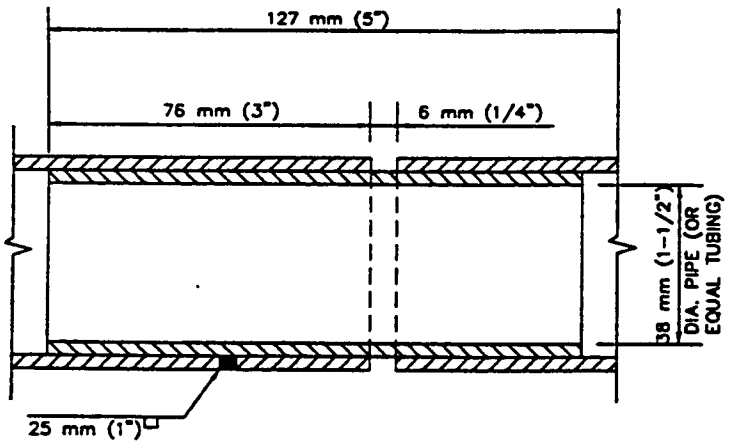
METAL HAND RAILINGS

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

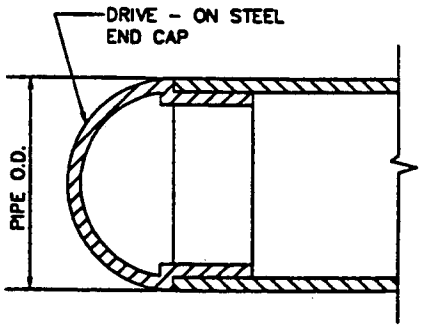
STANDARD PLAN METRIC
606 - 1
SHEET 1 OF 2



HANDRAIL INSTALLATION ON STAIRWAYS



SLIP JOINT DETAIL



CAP DETAIL FOR RAIL END

NOTES:

1. TYPE B OR TYPE C SHALL BE USED WHERE ADJACENT GRADE IS MORE THAN 762 mm (2'-6") BELOW LANDING OR SIDEWALK FINISHED SURFACE.
2. PROVIDE SLIP JOINTS AT STAIRWAY EXPANSION JOINTS AND AT EVERY 7.31 m (24 FEET) ON CENTER MAXIMUM.
3. MAXIMUM SPACING OF POST SHALL BE 2.44 m (8 FEET) ON STRAIGHT ALIGNMENT 1.83 m (6 FEET) ON CURVED ALIGNMENT LESS THAN 9.14 m (30 FEET) RADIUS. SPACING SHALL BE UNIFORM BETWEEN CHANGES IN ALIGNMENT.

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER	STANDARD PLAN METRIC 606 - 1 SHEET 2 OF 2
METAL HAND RAILINGS	

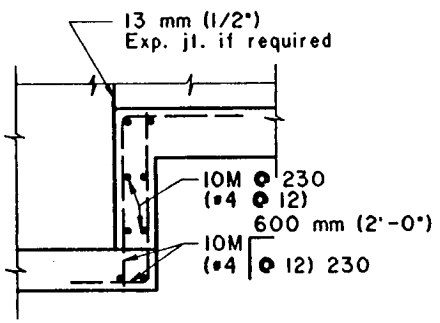
AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER

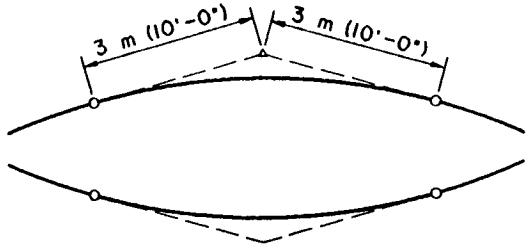
REINFORCED CONCRETE RETAINING WALL DETAILS

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE PUBLIC WORKS STANDARDS INC. GREENBOOK COMMITTEE
1984
REV. 1998

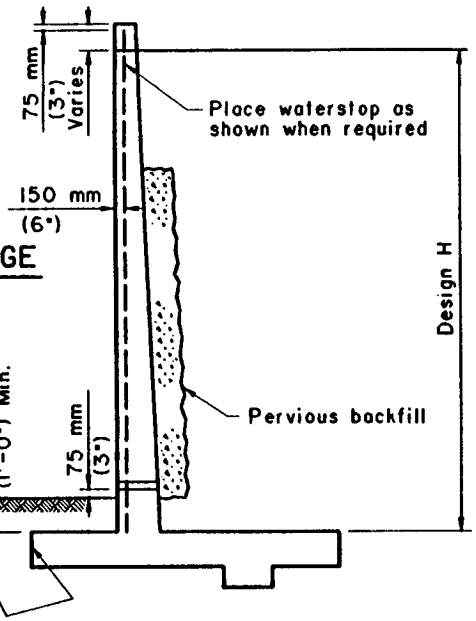
STANDARD PLAN METRIC
617 - 1
SHEET 1 OF 5



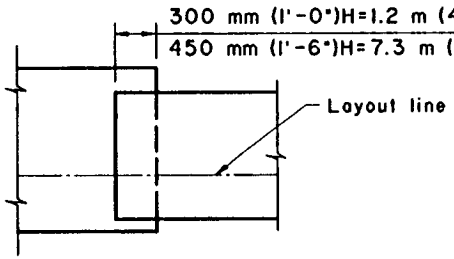


6 m (20') VC AT TOP OF WALL SLOPE CHANGE

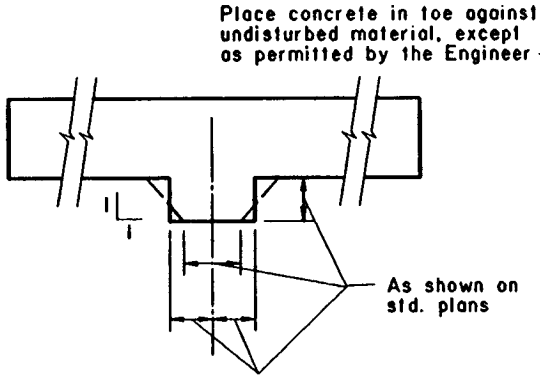
WHERE SHOWN ON THE PLANS



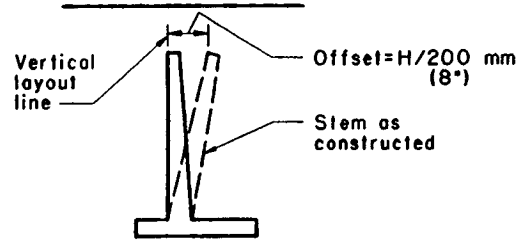
TYPICAL SECTION



FOOTING STEP



OPTIONAL TYPE KEY DETAIL



APPROX. WALL OFFSET VALUES

NOTES:

A. 100 mm (4") Ø drains @ 7.6 m (25') max. center [2.7 m (9') cc for Type 3 and 2.8 m (9'-3") cc for Type 4 Retaining Walls] For walls adjacent to sidewalks or curbs, provide 100 mm (4") cast iron or asbestos cement pipe under the sidewalk to discharge thru curb face. Exposed wall drains shall be located 76 mm (3")± above finished grade.

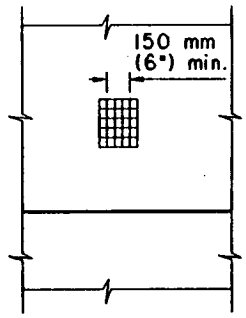
B. 150 mm (6") square aluminum or galvanized steel wire 4 mesh hardware cloth. [Min. wire diameter 0.75 mm (0.03")] Anchor firmly to backface.

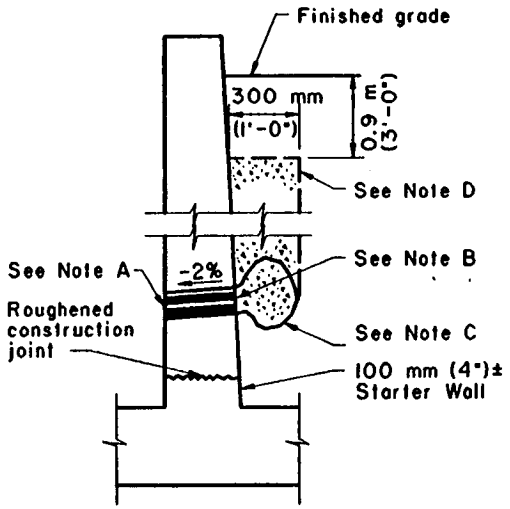
C. One cubic foot pervious backfill material in a burlap sack, securely tied.

D. Pervious backfill material continuous behind retaining wall.

E. Provide vertical construction joints at steps or 12 m (40') max. O.C.

F. Provide expansion joint at 12 m (40') max. O.C.





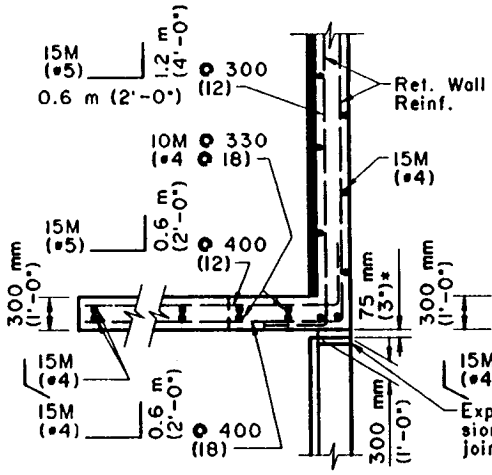
ELEVATION SECTION

WEEP HOLE AND PERVIOUS BACKFILL

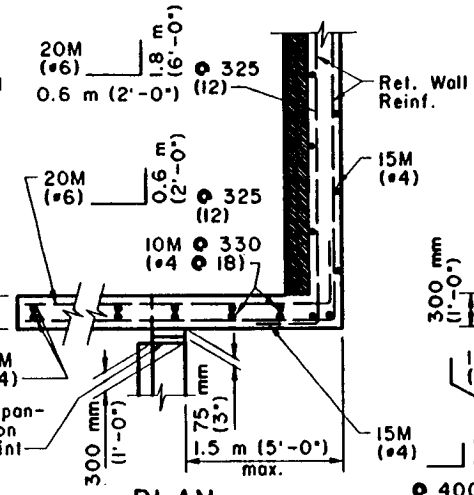
AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER

REINFORCED CONCRETE RETAINING WALL DETAILS

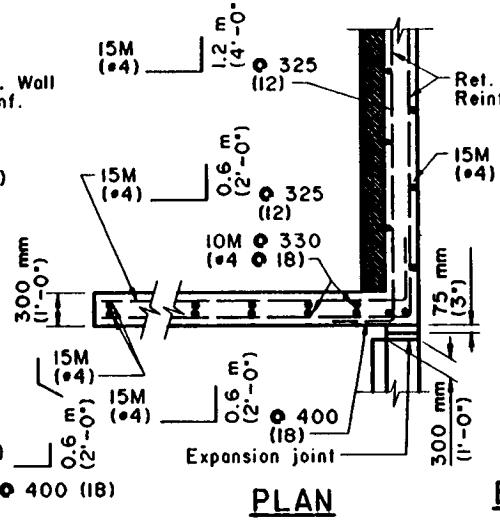
STANDARD PLAN METRIC
617 - 1
SHEET 2 OF 5



PLAN
(For Return Wall Type "A")

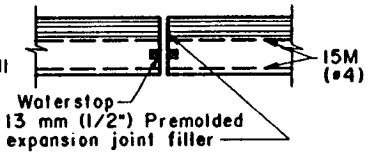


PLAN
(For Return Wall Type "B")

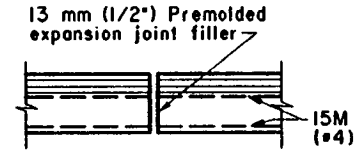


400 (18)

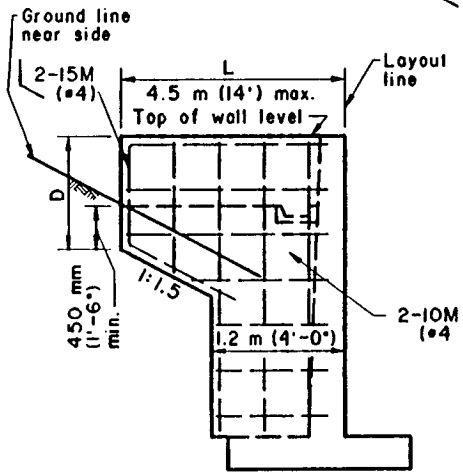
PLAN
(For Return Wall Type "C")



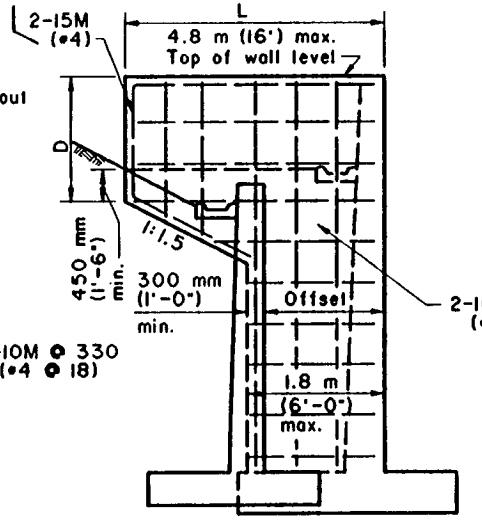
PLAN OF WALL WITH WATERSTOP



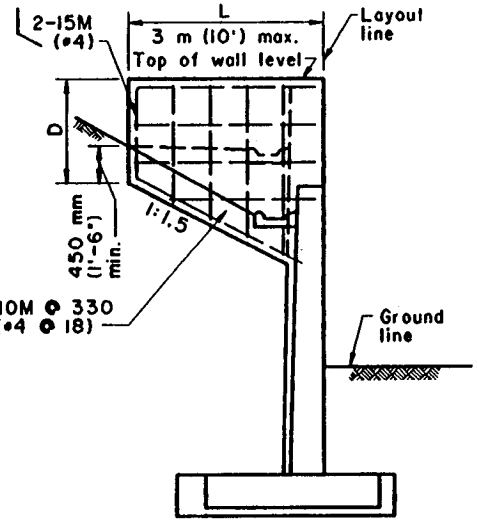
PLAN OF WALL WITH EXPANSION JOINT ONLY



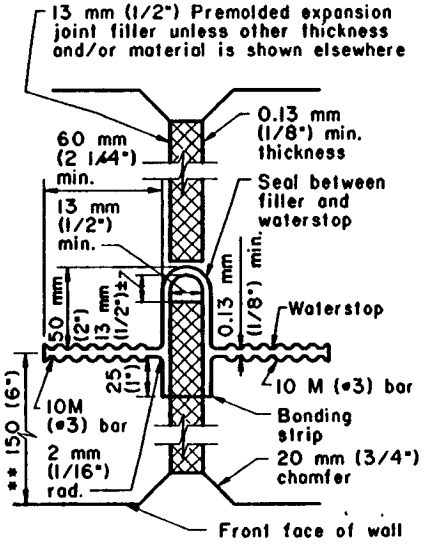
ELEVATION
RETURN WALL TYPE 'A'
Use where H=2.5 m (8') or less



ELEVATION
RETURN WALL TYPE 'B'
Use where H=3 m (10') or more on offset walls



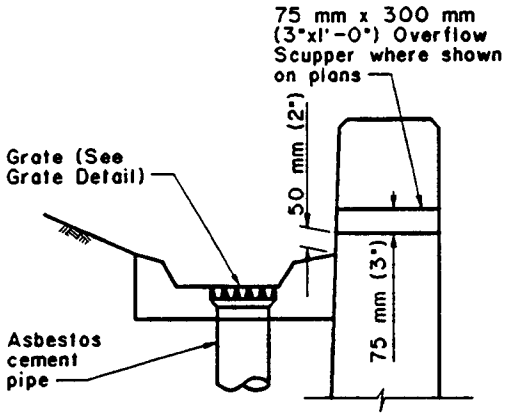
ELEVATION
RETURN WALL TYPE 'C'
Use where H=3 m (10') or more on straight walls



WALL EXPANSION JOINT AND WATERSTOP DETAIL*

* Holes will be permitted in the outer 13 mm (1/2") of the web for wire, rings, etc. Tie web to 10M (•3) reinforcing bars @ 300 mm (12") max. intervals to support the waterstop in proper position during concrete placement. Alternative detail may be submitted for approval of the Engineer. Waterstop to have 5 or more pairs of raised ribs to provide 2.5 sq. mm (0.1 sq. in.) min. rib cross-section area on each half of the waterstop.

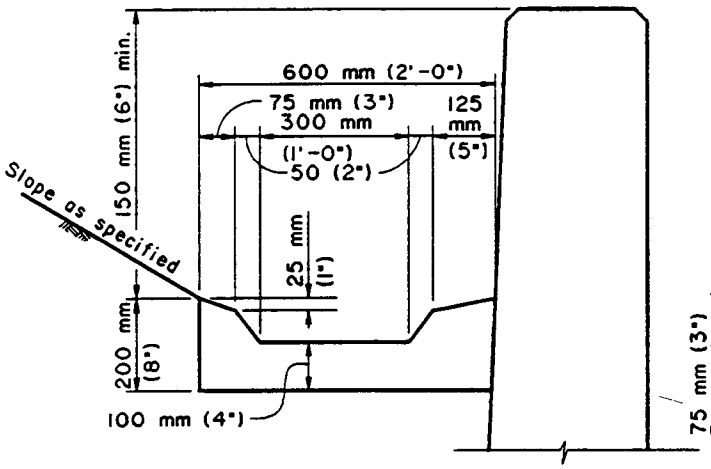
** For wall thickness less than 300 mm (12"), use 1/2 the wall thickness



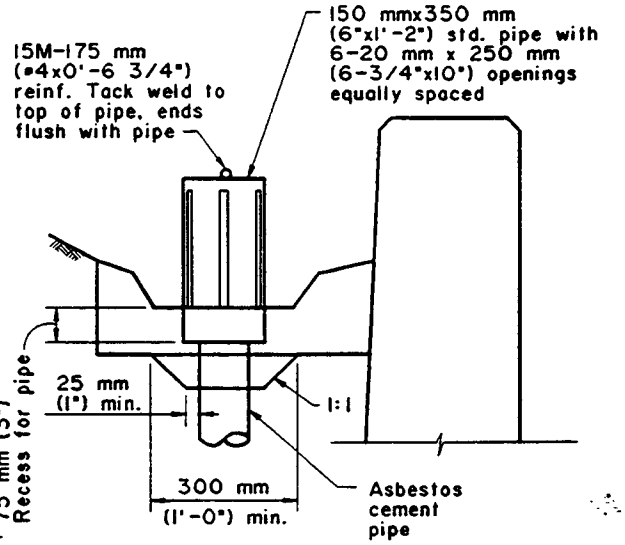
WALL DRAIN DETAIL

GRATE DETAIL

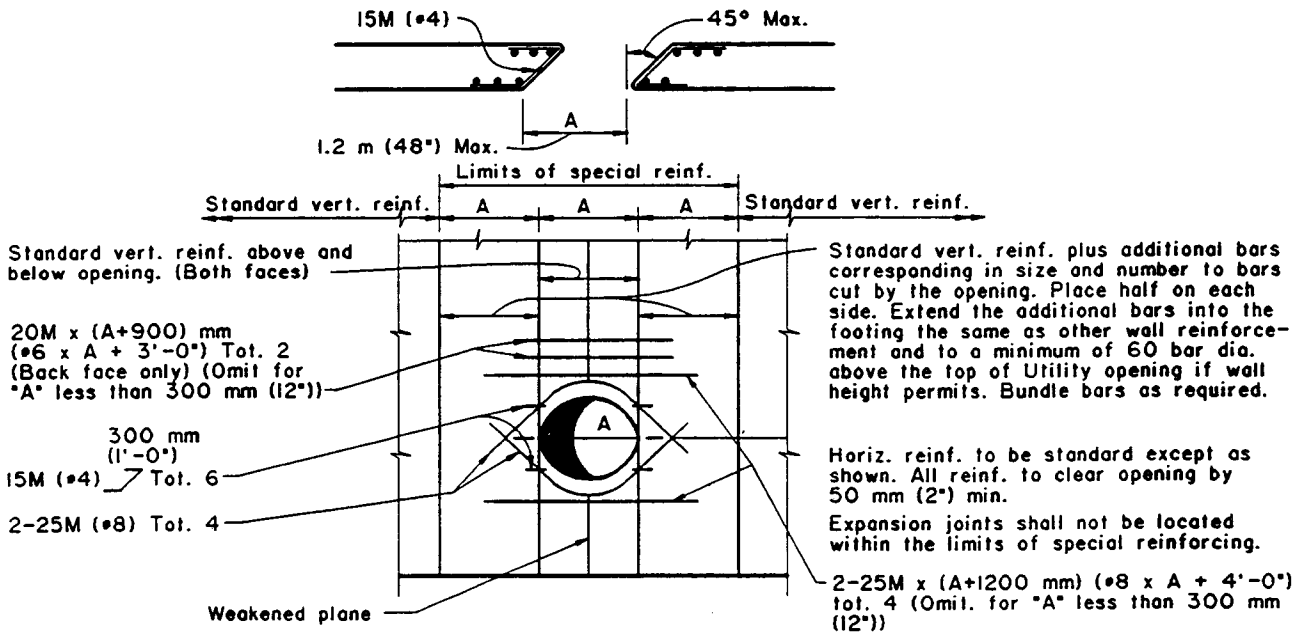
Sizes to fit Standard Hubs



TYPICAL GUTTER DETAIL



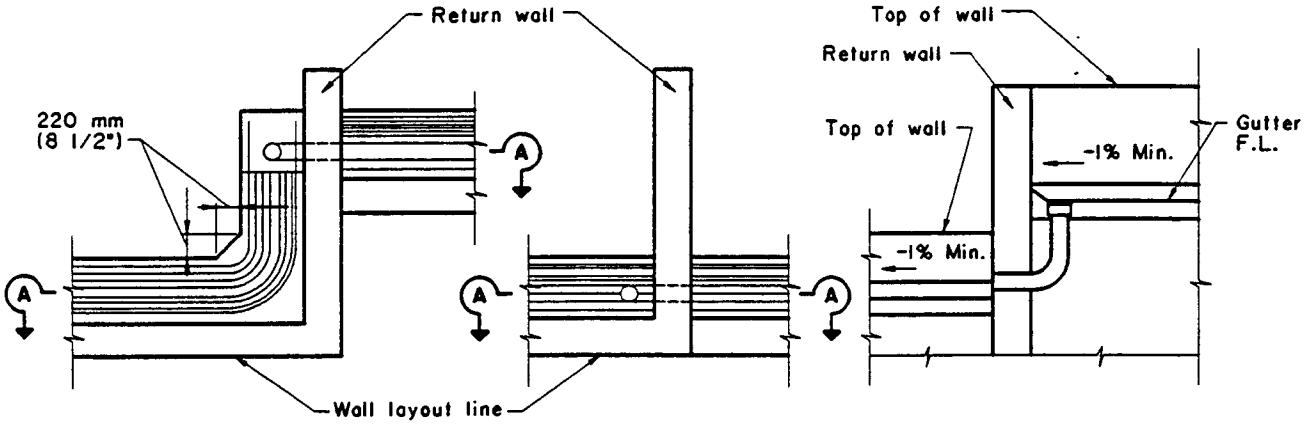
WALL DRAIN WITH PIPE DOME



RETAINING WALL UTILITY OPENING

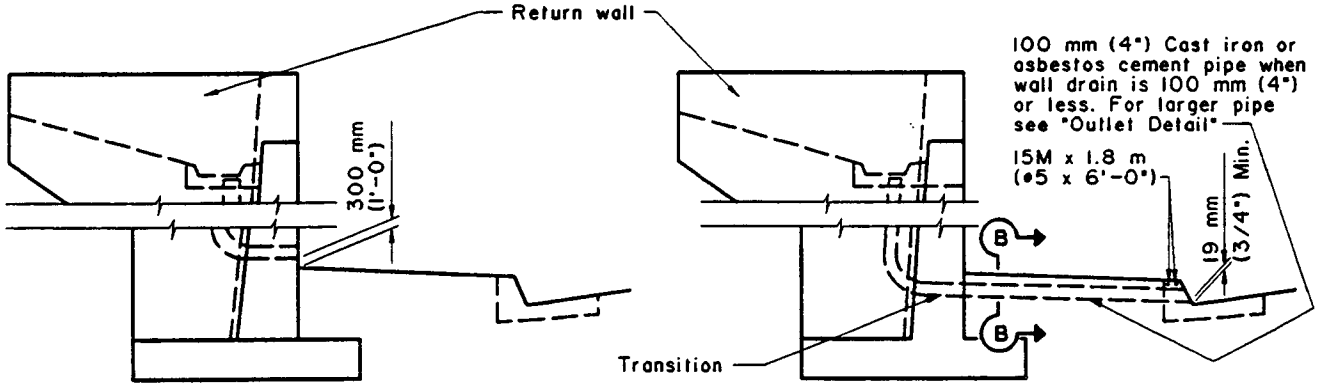
Max. size of Opening (A)=1.2 m (48")

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER	STANDARD PLAN METRIC 617 - 1 SHEET 3 OF 5
REINFORCED CONCRETE RETAINING WALL DETAILS	

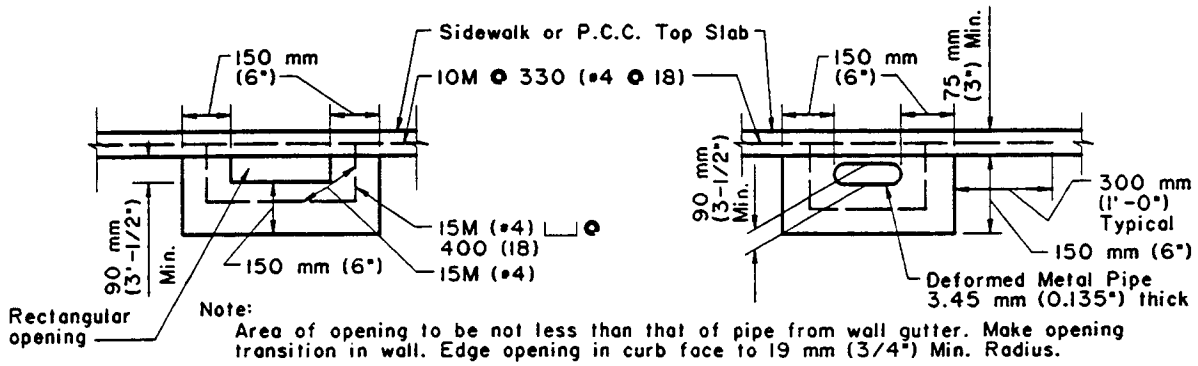


PLAN-OFFSET WALL PLAN-CONTINUOUS WALL SECTION A-A

DRAIN THROUGH RETURN WALL

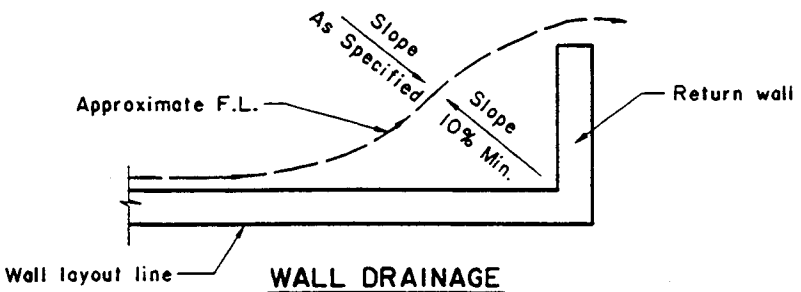


RETAINING WALL, FACE OF WALL OUTLET RETAINING WALL, GUTTER OUTLET



Note:
Area of opening to be not less than that of pipe from wall gutter. Make opening transition in wall. Edge opening in curb face to 19 mm (3/4") Min. Radius.

OUTLET DETAIL-SECTION B-B



WALL DRAINAGE
WHERE GUTTER NOT REQUIRED

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER	STANDARD PLAN METRIC 617 - 1 SHEET 4 OF 5
REINFORCED CONCRETE RETAINING WALL DETAILS	

DESIGN CONDITIONS:

Design H may be exceeded by 150 mm (6") before going to the next size. Footing key is required except when found unnecessary by the Engineer. Special footing design is required where foundation material is incapable of supporting toe pressure loads listed in table.

DESIGN DATA:

f_c=9MPa (1300 psi) f'_c =22MPa (3250 psi) f_s=166MPa (24,000 psi) n=10 earth=19KN/m (120^3pcf)
Case I Equivalent fluid pressure=5.6 kPa/m (36 psf) max. for determination of toe pressure. 1.3 kPa/m (27 psf) min. for determination of heel pressure.
Case II, III, IV. Wall design is based on Rankine's formula $\phi = 33°-42'$.

QUANTITIES:

Quantities do not include the wall portion above "Gutter Elevation" and are for design purposes only.

LOADING CONDITIONS:

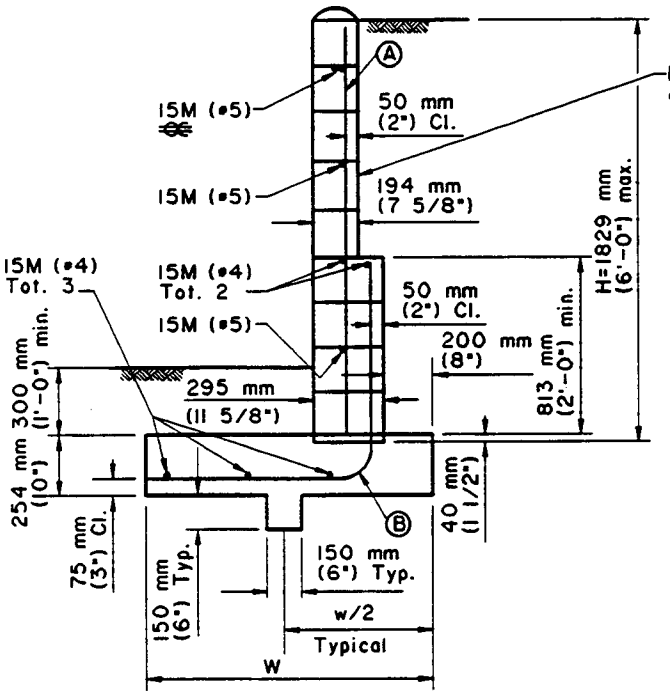
Case I 0.6 m (2') surcharge
Case II 1:2 (2:1) unlimited surcharge
Case III 1:1.5 (1 1/2:1) 2.1 m (7') limited surcharge
Case IV 1:1.5 (1 1/2:1) unlimited surcharge

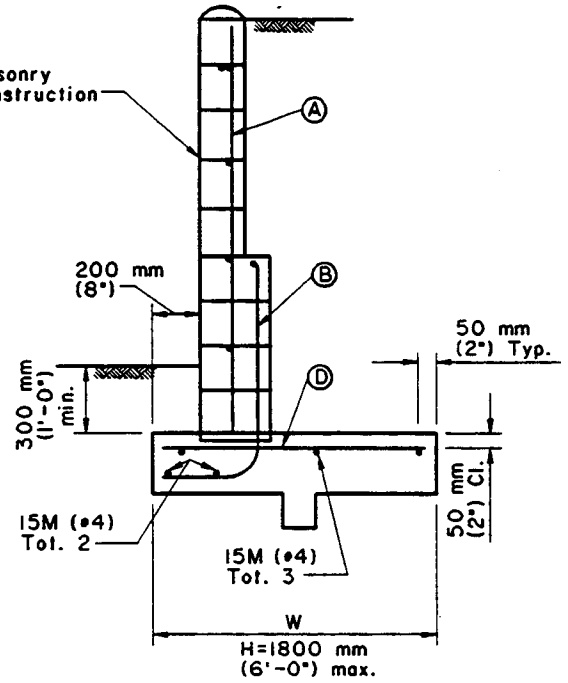
LAPPED SPLICES:

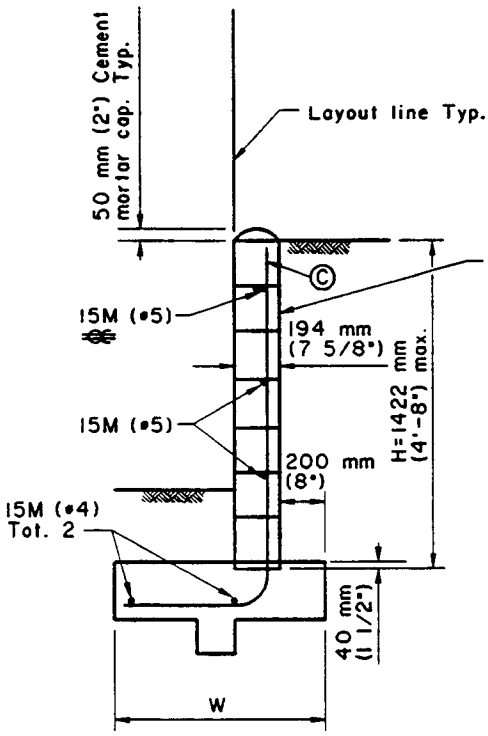
Where A 615 Grade 400MPa (60 ksi) or A 706 reinforcing bars are used, the length of lapped splices shall be at least 45xdiameters of the smaller bar joined.

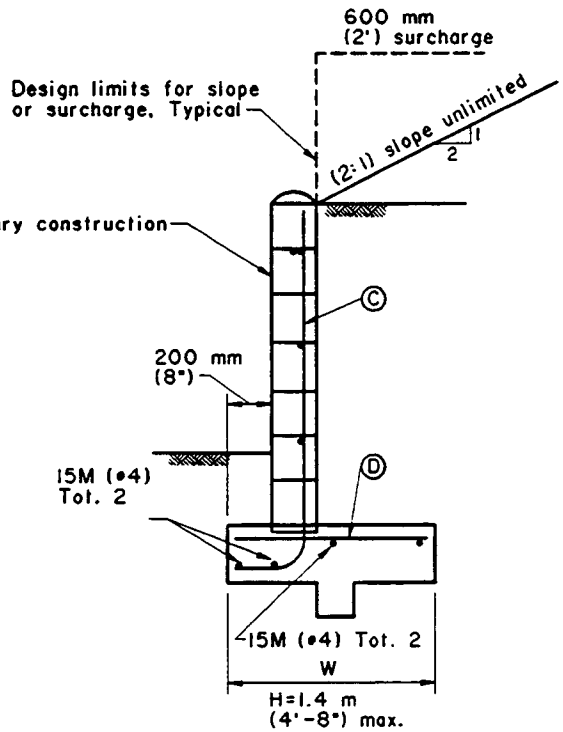
NOTE:

DIMENSIONS SHOWN ON THE PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACTLY EQUAL VALUES. IF METRIC UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH VALUES.









TYPE A WALL

TYPE B WALL

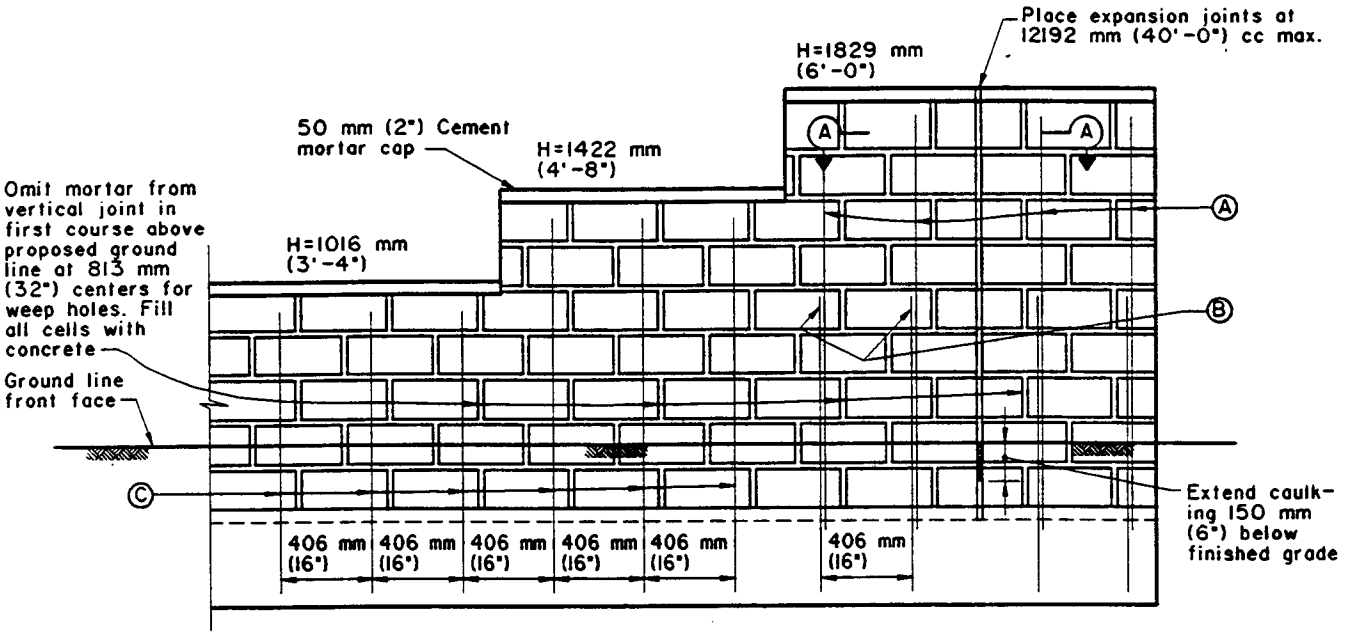
AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1984 REV. 1996	**MASONRY RETAINING WALL** USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	STANDARD PLAN METRIC 618 - 1 SHEET 1 OF 3

Type	Design H	1016 (3'-4")	1219 (4'-0")	1422 (4'-8")	1626 (5'-4")	1829 (6'-0")
A	W	1000 (3'-2")	1100 (3'-6")	1200 (3'-10")	1300 (4'-2")	1400 (4'-6")
A	Ⓐ				15M @ 406 (#4 @ 16)	15M @ 406 (#4 @ 16)
A	Ⓑ				15M @ 406 (#4 @ 16)	15M @ 406 (#5 @ 16)
A	Ⓒ	15M @ 406 (#4 @ 16)	15M @ 406 (#4 @ 16)	15M @ 406 (#5 @ 16)		
Footing Conc.	m^3/m CF/LF	0.27 (2.9)	0.30 (3.2)	0.31 (3.4)	0.34 (3.7)	0.37 (4.0)
Reinf.	kg/m lbs/LF	13 (8.5)	13.5 (8.9)	17.5 (11.6)	19 (12.8)	22.5 (15.0)

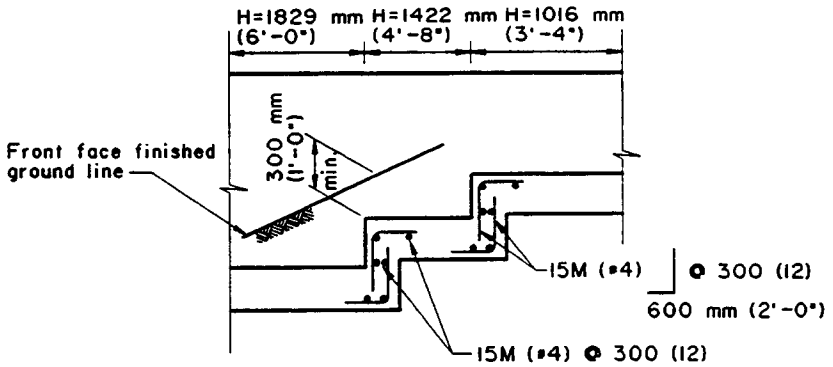
Type	Design H	1016 (3'-4")	1219 (4'-0")	1422 (4'-8")	1626 (5'-4")	1829 (6'-0")
B	W	850 (2'-8")	950 (3'-0")	1050 (3'-4")	1150 (3'-8")	1250 (4'-0")
B	Ⓐ				15M @ 406 (#4 @ 16)	15M @ 406 (#4 @ 16)
B	Ⓑ				15M @ 406 (#4 @ 16)	15M @ 406 (#5 @ 16)
B	Ⓒ	15M @ 406 (#4 @ 16)	15M @ 406 (#4 @ 16)	15M @ 406 (#5 @ 16)		
B	Ⓓ	15M @ 375 (#4 @ 16)	15M @ 375 (#4 @ 16)	15M @ 375 (#4 @ 16)	15M @ 375 (#4 @ 16)	15M @ 300 (#5 @ 16)
Footing Conc.	m^3/m CF/LF	0.23 (2.5)	0.26 (2.8)	0.28 (3.0)	0.31 (3.3)	0.33 (3.6)
Reinf.	kg/m lbs/LF	13.5 (9.1)	14.5 (9.6)	17.5 (11.8)	19 (12.9)	23 (15.4)

NOTE:

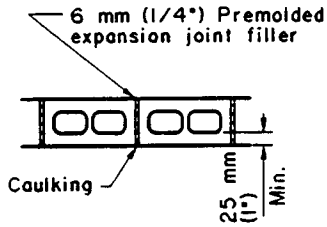
DIMENSIONS SHOWN ON THE PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACTLY EQUAL VALUES. IF METRIC UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH VALUES.



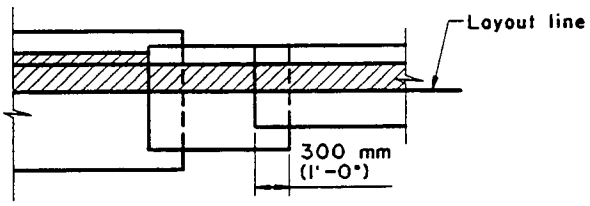
ELEVATION-MASONRY CONSTRUCTION



ELEVATION



SECTION A-A



PLAN
FOOTING STEP DETAILS

DESIGN CRITERIA:

Masonry: f_m = 3.5MPa (500 psi) f'_m = 10.3MPa (1500 psi) f_s = 165MPa (24,000 psi) n = 20

Reinf. Conc.: f_c = 9MPa (1300 psi) f'_c = 22MPa (3250 psi) f_s = 165MPa (24,000 psi) n = 10

Earth = 19 KN/m^3 (120 pcf.)

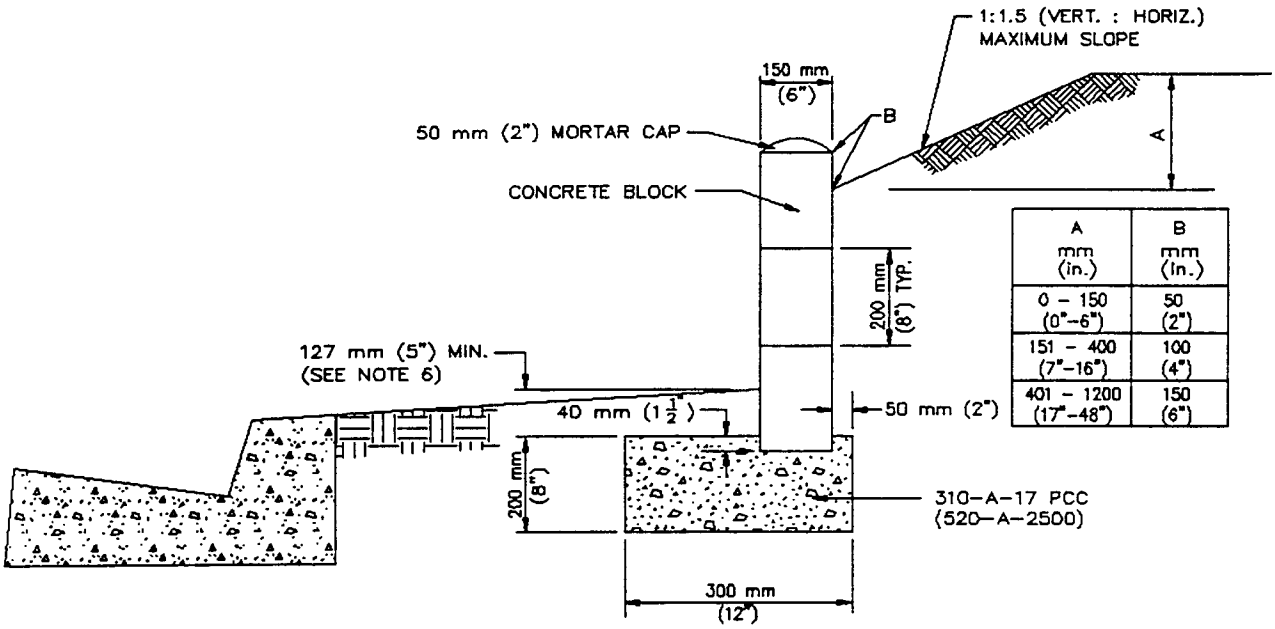
.6 m (2') Surcharge

Equivalent fluid pressure = 5.6 kPa/m (36 pcf) for determination of toe pressure.
4.2 kPa/m (27 pcf) for determination of heel pressure.

1:2 (2:1) Unlimited Surcharge: Earth pressure determined from Rankine's formula ϕ = 33°-42'.

Minimum allowable soil bearing capacity of foundation material = 96kPa (2000 psf.)

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER	STANDARD PLAN METRIC 618 - 1 SHEET 3 OF 3
MASONRY RETAINING WALL	



A mm (in.)	B mm (in.)
0 – 150 (0"–6")	50 (2")
151 – 400 (7"–16")	100 (4")
401 – 1200 (17"–48")	150 (6")

3 COURSE MAXIMUM

NOTES:

1. CONCRETE AND CONCRETE BLOCK SHALL BE PER SSPWC.
2. CONCRETE BLOCKS SHALL BE PLACED WHILE THE FOOTING IS STILL FRESH. ALL CELLS TO BE FILLED SOLID WITH GROUT AND RODDED SO GROUT IS MONOLITHIC WITH FRESH FOOTING.
3. OMIT MORTAR FROM VERTICAL JOINTS IN FIRST COURSE ABOVE FINISHED GRADE ON 812 mm (32") CENTERS FOR WEEP HOLES.
4. POUR FOOTING AGAINST UNDISTURBED NATURAL SOIL.
5. NO LIVE LOAD SURCHARGE ALLOWED ON RETAINED SOIL.
6. TOP OF FOOTING MAY BE PLACED PARALLEL TO PARKWAY GRADE IF STREET GRADE IS RELATIVELY FLAT AND UNIFORM. (MAX. 5%).
7. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXCATLY EQUAL VALUES. IF METRIC UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH VALUES.

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER

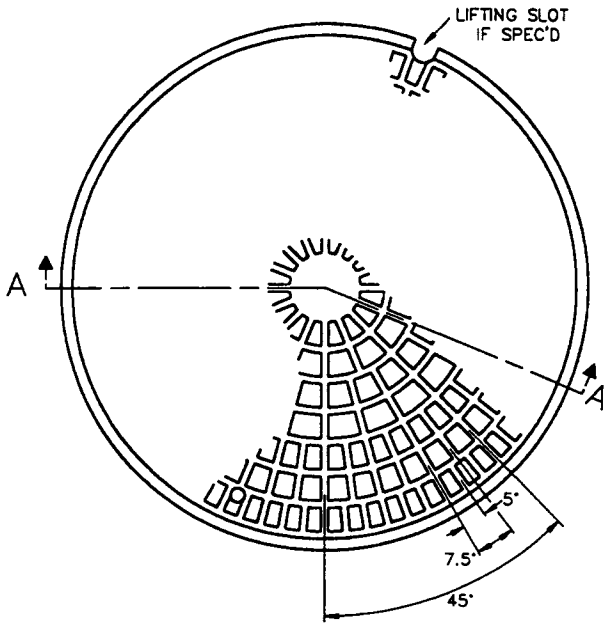
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1993 REV. 1995

CONCRETE BLOCK SLOUGH WALL

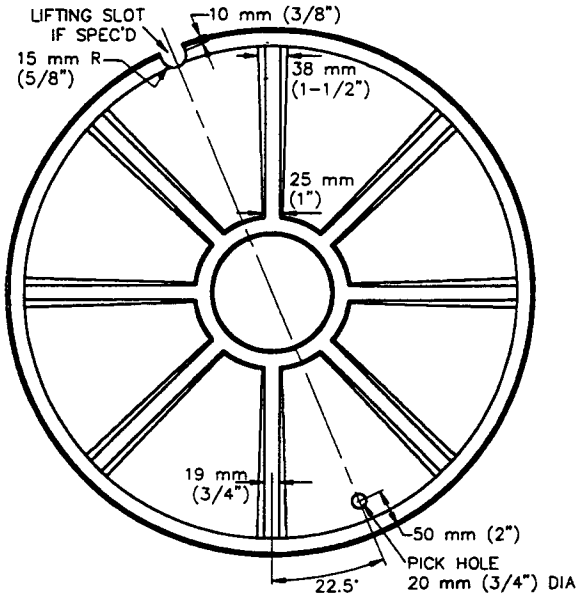
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN METRIC 622 - 1

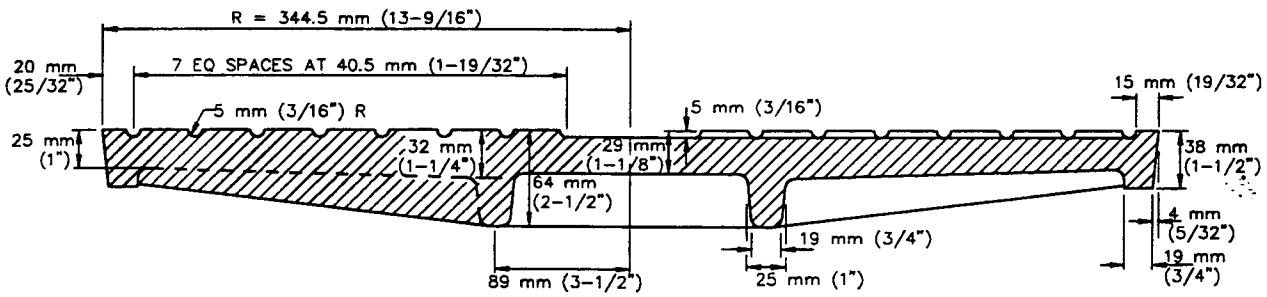
SHEET 1 OF 1



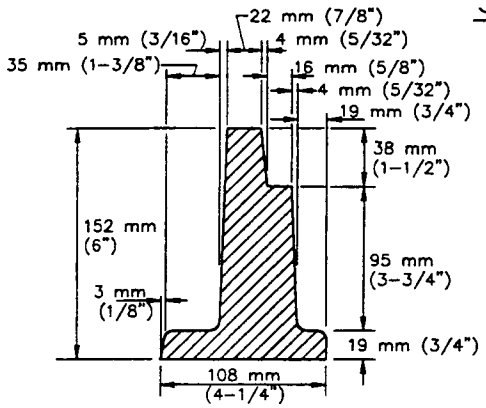
TOP OF COVER



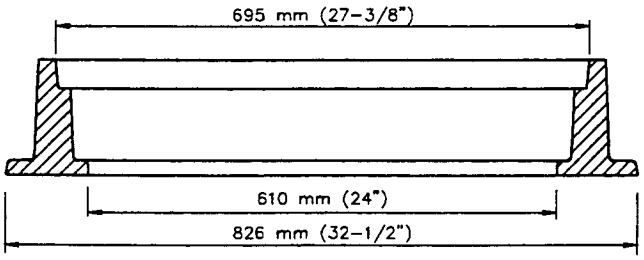
BOTTOM OF COVER



SECTION A-A



FRAME DETAIL



SECTION THRU FRAME

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1984 REV. 1996	**610 mm (24") MANHOLE FRAME AND COVER** USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	STANDARD PLAN METRIC 630 - 2 SHEET 1 OF 2

NOTES:

1. THE CAST IRON USED SHALL CONFORM TO ASTM A-48 CLASS 35B.

2. COVERS SHALL BE CAST WITH THE LETTER "D" FOR STORM DRAINS AND "S" FOR SEWERS, AND THE AGENCY'S IDENTIFICATION IN ACCORDANCE WITH INSTRUCTIONS FURNISHED BY THE AGENCY. THE LETTER "D" OR "S" SHALL BE APPROXIMATELY 65 mm (2-1/2") HIGH WITH 15 mm (1/2") LINE WIDTH, AND PLACED IN THE CENTER OF THE COVER. ALL LETTERS SHALL BE FLUSH WITH THE FINISHED SURFACE OF THE COVER.

3. FOUNDRY IDENTIFYING MARK, HEAT AND DATE SHALL BE CAST ON THE BOTTOM OF THE COVER AND ON THE INSIDE OF THE FRAME.

4. IMPORTED COVERS AND FRAMES SHALL HAVE THE COUNTRY OF ORIGIN MARKING IN COMPLIANCE WITH FEDERAL REGULATIONS.

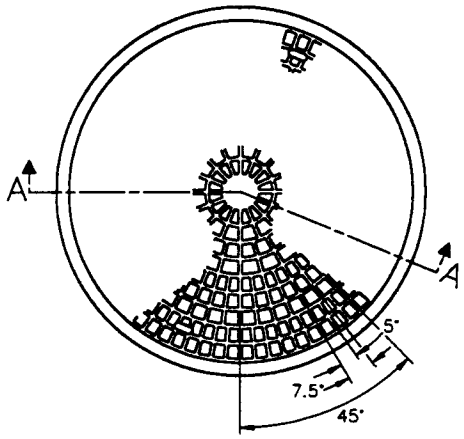
5. WEIGHT OF FRAME SHALL BE 118 kg (260 LBS). WEIGHT OF COVER SHALL BE 79 kg (175 LBS). ACTUAL WEIGHTS SHALL BE WITHIN A RANGE OF 95% TO 110%.

6. THE MANHOLE FRAME AND COVER SHALL BE INSPECTED BY THE ENGINEER PRIOR TO SHIPMENT TO THE JOB SITE. ACCEPTANCE WILL BE INDICATED BY THE AGENCY'S MARK.

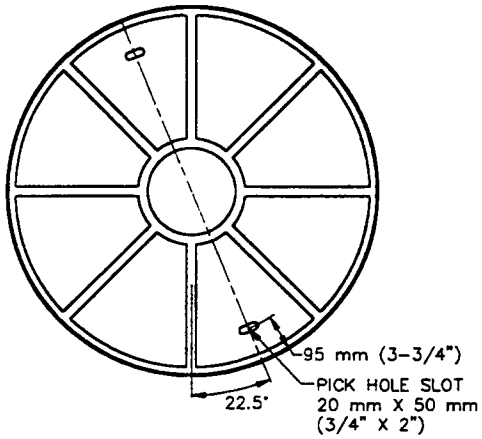
7. THE PROOF-LOAD FOR TEST METHOD B OF THE STANDARD SPECIFICATIONS IS 180 kN (40,700 LBS).

8. COVERS FOR MANHOLES LOCATED IN EASEMENTS, ALLEYS, PARKWAYS AND ALL PLACES OTHER THAN PAVED STREETS SHALL BE PROVIDED WITH SOCKET-SET SCREW LOCKING DEVICES. DRILL AND TAP TWO HOLES TO A DEPTH OF ONE INCH AT 90 DEGREES TO PICK HOLE AND INSTALL 20 mm x 20 mm (3/4" x 3/4") STAINLESS STEEL SOCKET-SET SCREWS WITH 10 mm (3/8") RECESSED HEX HEAD. ALL THREADS SHALL BE N.C.

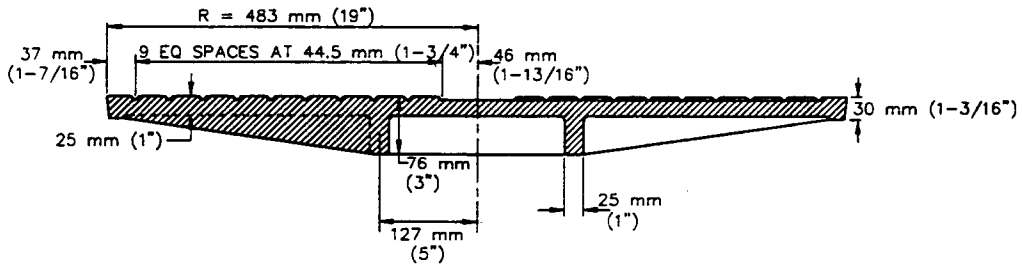
9. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACTLY EQUAL VALUES. IF METRIC UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH VALUES.



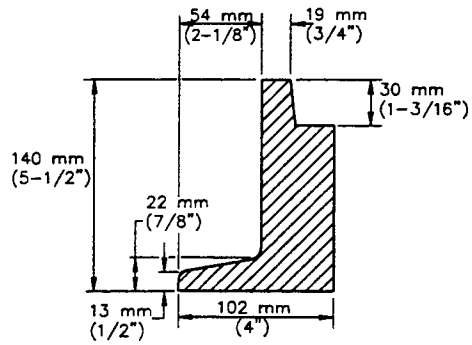
TOP OF COVER



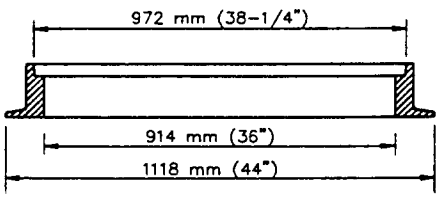
BOTTOM OF COVER



SECTION A-A



FRAME DETAIL



SECTION THRU FRAME

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1984 REV. 1992, 1996	**914 mm (36") MANHOLE FRAME AND COVER** USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	STANDARD PLAN METRIC 633 - 3 SHEET 1 OF 2

NOTES:

1. THE CAST IRON USED SHALL CONFORM TO ASTM A-48 CLASS 35B.

2. COVERS SHALL BE CAST WITH THE LETTER "D" FOR STORM DRAINS AND "S" FOR SEWERS, AND THE AGENCY'S IDENTIFICATION IN ACCORDANCE WITH INSTRUCTIONS FURNISHED BY THE AGENCY. THE LETTER "D" OR "S" SHALL BE APPROXIMATELY 65 mm (2-1/2") HIGH WITH 15 mm (1/2") LINE WIDTH, AND PLACED IN THE CENTER OF THE COVER. ALL LETTERS SHALL BE FLUSH WITH THE FINISHED SURFACE OF THE COVER.

3. FOUNDRY IDENTIFYING MARK, HEAT AND DATE SHALL BE CAST ON THE BOTTOM OF THE COVER AND ON THE INSIDE OF THE FRAME.

4. IMPORTED COVERS AND FRAMES SHALL HAVE THE COUNTRY OF ORIGIN MARKING IN COMPLIANCE WITH FEDERAL REGULATIONS.

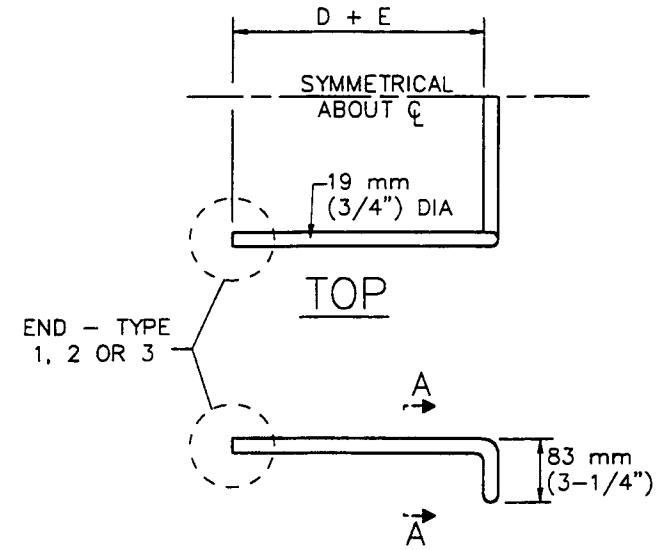
5. WEIGHT OF FRAME SHALL BE 152 kg (335 LBS). WEIGHT OF COVER SHALL BE 154 kg (340 LBS). ACTUAL WEIGHTS SHALL BE WITHIN A RANGE OF 95% TO 110%.

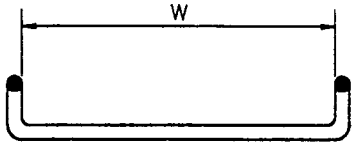
6. THE MANHOLE FRAME AND COVER SHALL BE INSPECTED BY THE ENGINEER PRIOR TO SHIPMENT TO THE JOB SITE. ACCEPTANCE WILL BE INDICATED BY THE AGENCY'S MARK.

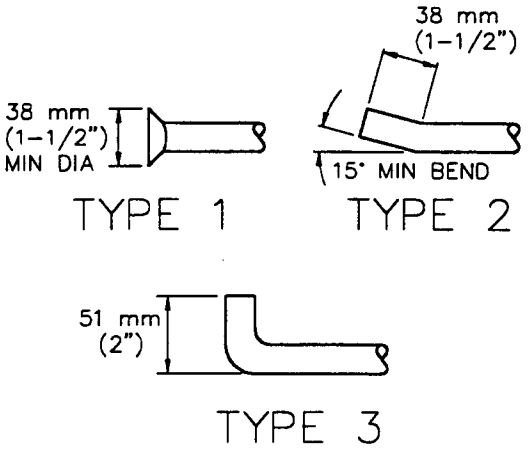
7. THE PROOF-LOAD FOR TEST METHOD B OF THE STANDARD SPECIFICATIONS IS 183 kN (41,300 LBS).

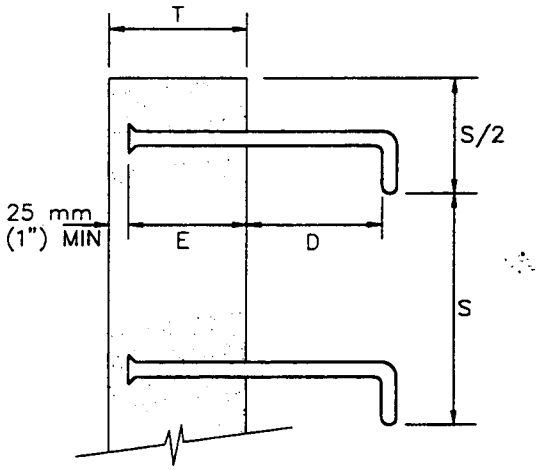
8. COVERS FOR MANHOLES LOCATED IN EASEMENTS, ALLEYS, PARKWAYS AND ALL PLACES OTHER THAN PAVED STREETS SHALL BE PROVIDED WITH SOCKET-SET SCREW LOCKING DEVICES. DRILL AND TAP TWO HOLES TO A DEPTH OF ONE INCH AT 90 DEGREES TO PICK HOLE AND INSTALL 20 mm x 20 mm (3/4" x 3/4") STAINLESS STEEL SOCKET-SET SCREWS WITH 10 mm (3/8") RECESSED HEX HEAD. ALL THREADS SHALL BE N.C.

9. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACTLY EQUAL VALUES. IF METRIC UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH VALUES.









UNLESS OTHERWISE NOTED:

D = 175 mm (7")
E = 150 mm (6") OR T – 25 mm (1"), WHICHEVER IS LESS
MINIMUM E IS 75 mm (3")
S = 300 mm (12") MAX, EVENLY SPACED
W = 400 mm (16") MIN

FOR MANHOLES AND UNDERGROUND VAULTS:
S = 400 mm (16") MAX, EVENLY SPACED
W = 350 mm (14") MIN

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1984 REV. 1992, 1996	**STEEL STEP**	STANDARD PLAN METRIC 635 - 2
	USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	SHEET 1 OF 2

NOTES:

1. STEPS SHALL BE STEEL CONFORMING TO ASTM A307 AND SHALL BE GALVANIZED AFTER FABRICATION. UNLESS OTHERWISE NOTED, STEPS MAY ALSO BE POLYPROPYLENE STEPS, STEEL REINFORCED, CONFORMING TO STD PLAN 636.

2. IF STAINLESS STEEL STEPS ARE REQUIRED, THE MATERIAL SHALL CONFORM TO ASTM A276, 300 SERIES.

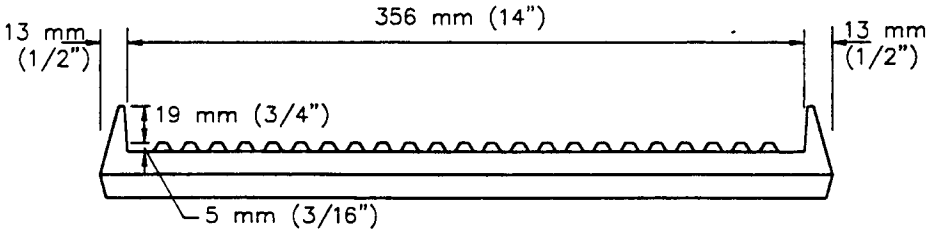
3. STEP ENDS MAY BE TYPE 1, 2 OR 3, AS SHOWN.

4. BOTTOM STEP SHALL BE A MAXIMUM OF 600 mm (2') ABOVE FLOOR OR SHELF.

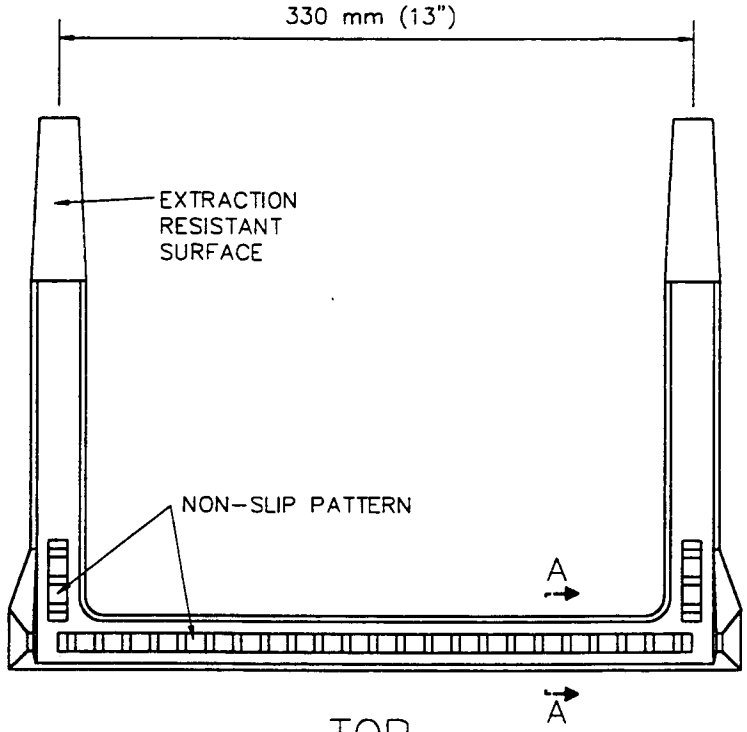
5. STEPS WITH TYPE 1 OR 2 ENDS MAY BE CAST IN PLACE, OR PLACED IN THE CENTER OF 40 mm (1-1/2") MIN DIA DRILLED OR FORMED HOLES AND SET WITH HIGH STRENGTH NON-SHRINK GROUT, 40 MPa (6000 PSI) MIN. STEPS WITH TYPE 3 ENDS SHALL BE CAST IN PLACE.

6. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACTLY EQUAL VALUES. IF METRIC UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH VALUES.

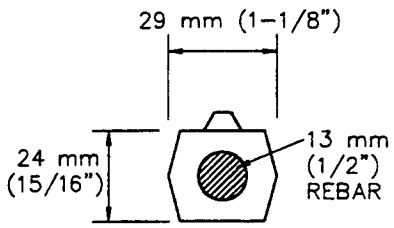
AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER	STANDARD PLAN METRIC 635 - 2 SHEET 2 OF 2
STEEL STEP	



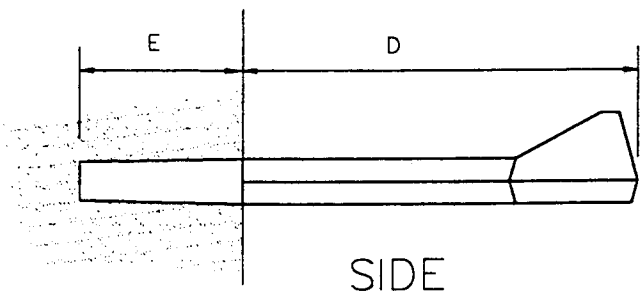
FRONT



TOP



SECTION A-A



SIDE

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1991 REV. 1996	**POLYPROPYLENE PLASTIC STEP** USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	STANDARD PLAN METRIC 636 - 1 SHEET 1 OF 2

NOTES:

1. STEPS SHALL BE STEEL-REINFORCED COPOLYMER POLYPROPYLENE PLASTIC CONFORMING TO:

   (A) ASTM D478 AND C497, EXCEPT THAT THE MINIMUM HORIZONTAL PULLOUT LOAD SHALL BE 6.7 kN (1500 LBS).
   (B) ASTM A615 GRADE 60 DEFORMED REINFORCING STEEL BAR.
   (C) CALIFORNIA CODE OF REGULATIONS TITLE 8, GENERAL INDUSTRY SAFETY ORDERS.

2. STEPS SHALL BE CAPABLE OF WITHSTANDING AN IMPACT LOAD OF 95 N.m (70 FT-LBS) AT -7°C (20°F) WITHOUT CRACKING OR FRACTURING.

3. THE MINIMUM TOTAL CROSS-SECTIONAL AREA OF THE EXPOSED PORTION OF THE STEP, INCLUDING THE DEFORMED STEEL BAR AND EXCLUDING THE NON-SLIP TREAD SURFACE, SHALL BE 645 mm2 (1.0 SQ IN).

4. THE ENTIRE POLYPROPYLENE PLASTIC MATERIAL SURROUNDING THE REINFORCING STEEL BAR SHALL BE CAST MONOLITHICALLY. MINIMUM COVER SHALL BE 5 mm (3/16").

5. A CERTIFICATION OF COMPLIANCE WITH THE REQUIREMENTS OF NOTES 1 THROUGH 4 PREPARED BY AN INDEPENDENT CERTIFIED LABORATORY SHALL BE SUBMITTED TO THE ENGINEER CONCURRENTLY WITH A REQUEST FOR APPROVAL.

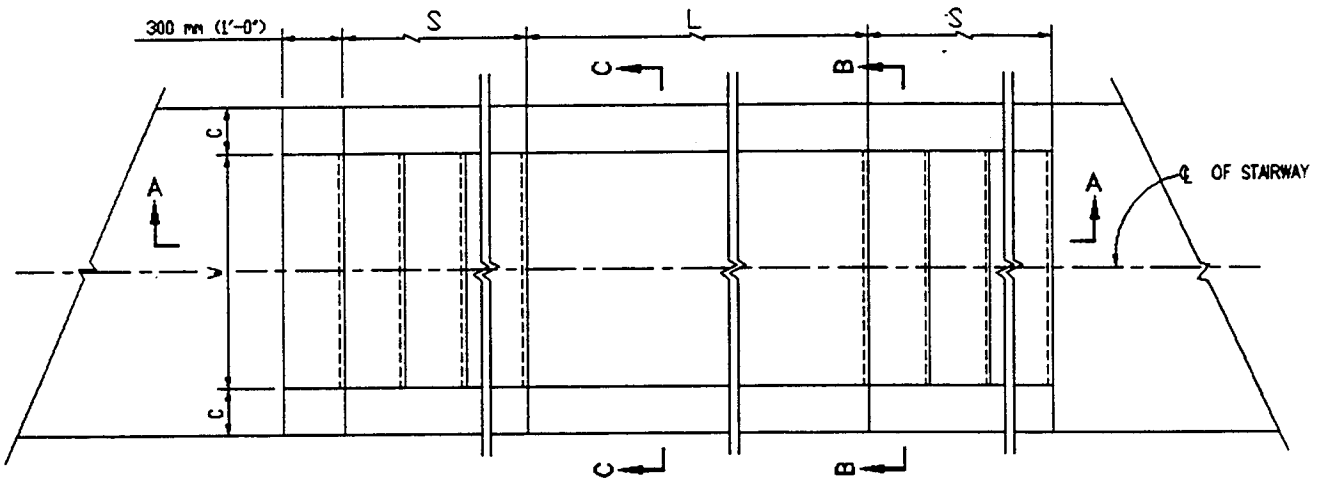
6. E = 86 mm (3-3/8"). FOR VAULTS AND MANHOLES, D = 140 mm (5-1/2"). FOR OTHER INSTALLATIONS, D = 190 mm (7-1/2"). THESE DIMENSIONS MAY BE PLUS OR MINUS 6 mm (1/4").

7. STEPS SHALL BE EVENLY SPACED. MAXIMUM VERTICAL SPACING OF STEPS SHALL BE 400 mm (16"), WITH THE BOTTOM STEP A MAXIMUM OF 600 mm (2') ABOVE FLOOR OR SHELF.

8. IF TAPERED STEPS ARE INSTALLED INTO STRAIGHT DRILLED OR FORMED HOLES, APPROVED NON-SHRINK GROUT SHALL BE INJECTED INTO THE HOLE PRIOR TO INSTALLATION. HOLES SHALL BE STRAIGHT AND PARALLEL. EXCEPT AS OTHERWISE NOTED, STEPS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDED PROCEDURES.

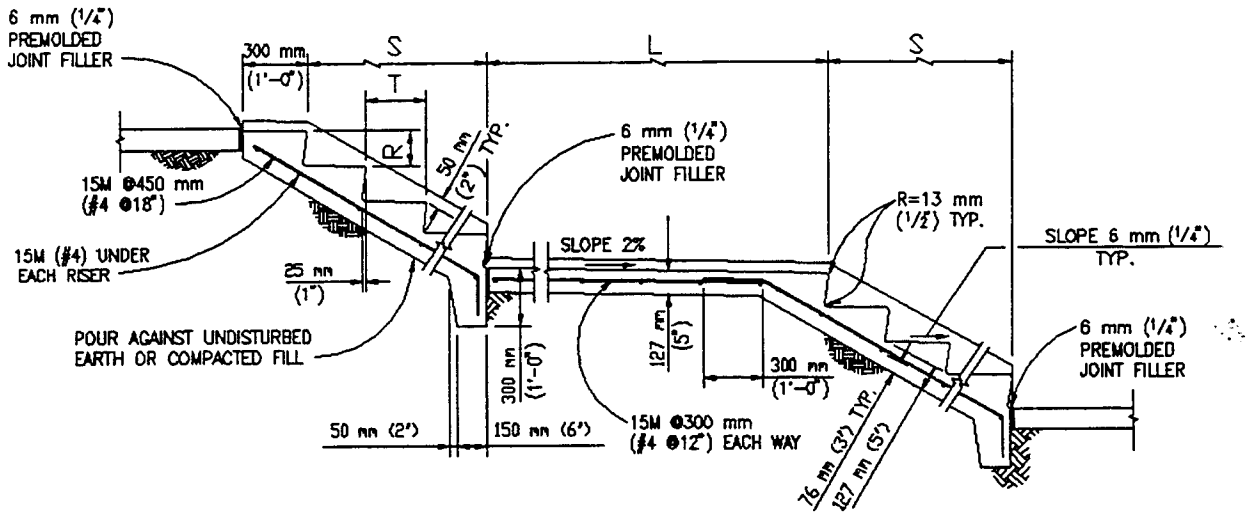
9. A DROP STEP WITH A MINIMUM DROP OF 19 mm (3/4") MAY BE USED. THE DROP STEP SHALL MEET ALL OTHER CRITERIA OF THIS PLAN.

10. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACTLY EQUAL VALUES. IF METRIC UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH VALUES.

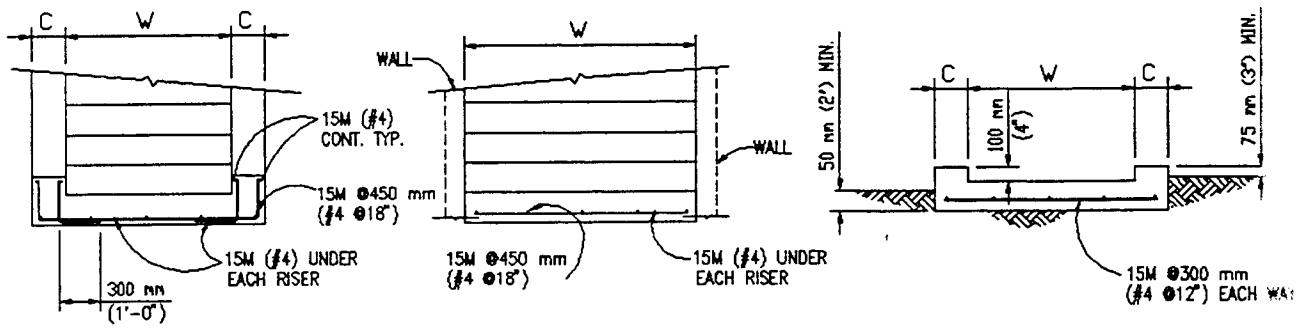


PLAN

NOTE: SEE PROJECT PLAN FOR HANDRAIL DETAILS OR STANDARD PLAN 606.



SECTION A–A



TYPE A

TYPE B

SECTION C–C

SECTION B–B

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC., GREENBOOK COMMITTEE 1994 REV. 1996	**REINFORCED CONCRETE STAIRWAY**	STANDARD PLAN METRIC **640 - 1**
	USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	SHEET 1 OF 2

NOTES:

1. SEE THE PROJECT PLANS FOR THE FOLLOWING INFORMATION:

    a. TYPE OF STAIRWAY AND LOCATION
    b. W = WIDTH OF STAIRWAY
    c. L = LENGTH OF LANDINGS
    d. T = LENGTH OF TREAD
    e. R = HEIGHT OF RISER
    f. C = WIDTH OF CURB
    g. S = LENGTH OF STAIRWAY FLIGHT

2. CONCRETE FINISH FOR EXPOSED SURFACES SHALL BE CLASS I, EXCEPT THAT TREADS AND LANDINGS SHALL BE TROWELLED SMOOTH AND GIVEN A FINE BROOM FINISH IN A DIRECTION PERPENDICULAR TO THE CENTERLINE OF THE STAIRWAY. THE BROOM FINISH SHALL BE BROUGHT TO THE NOSE OF THE TREADS AND LANDINGS.

3. TWO HANDRAILS ARE REQUIRED UNLESS OTHERWISE NOTED ON THE PROJECT PLANS, OR UNLESS THE STAIRWAY IS NOT OVER 1.22 m (4 ft) WIDE IN WHICH CASE ONE HANDRAIL IS REQUIRED.

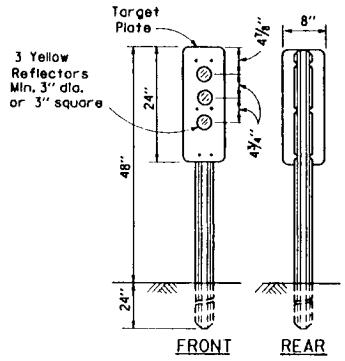
4. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACTLY EQUAL VALUES. IF METRIC UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC UNITS. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH UNITS.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

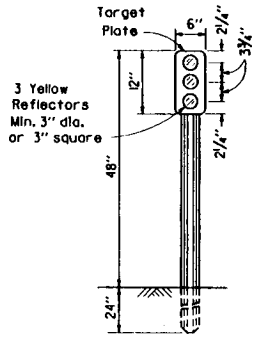
REGISTERED CIVIL ENGINEER

July 1, 1992
PLANS APPROVAL DATE

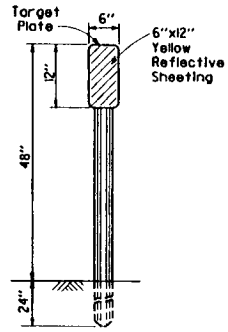
P. Lowden Jr. No. 12284 Exp. 3-31-93 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA



TYPE L-1
OBJECT MARKER



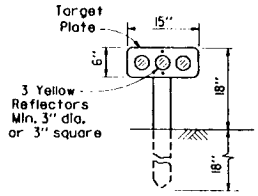
TYPE L-2
OBJECT MARKER



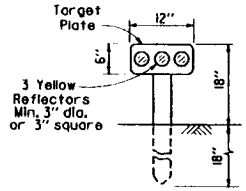
TYPE L-3
OBJECT MARKER

NOTES

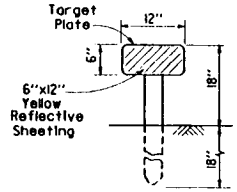
1. All object marker posts, except Type K-4 markers, may be either metal or flexible and may have cored anchors, driven anchors, or surface mounted bases.
2. See Standard Plan A73B for metal post details and additional markers.



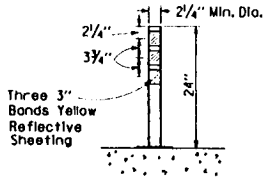
TYPE K-1
OBJECT MARKER



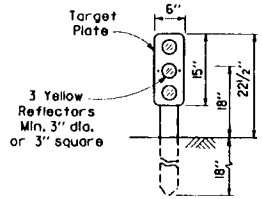
TYPE K-2
OBJECT MARKER



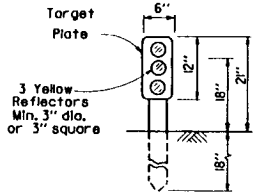
TYPE K-3
OBJECT MARKER



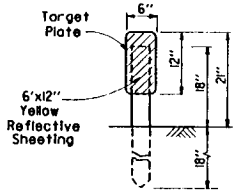
TYPE K-4
OBJECT MARKER
(Round Flexible Post)
Surface Mount



TYPE K-1A
OBJECT MARKER



TYPE K-2A
OBJECT MARKER



TYPE K-3A
OBJECT MARKER

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

MARKERS

NO SCALE

A73A

STD. PLAN A73A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

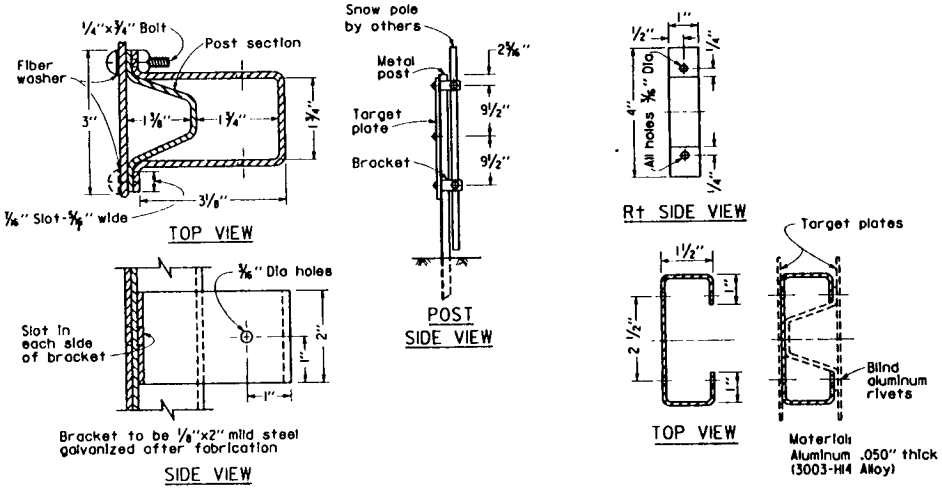
REGISTERED CIVIL ENGINEER

July 1, 1992
PLANS APPROVAL DATE

P. Lorden Jr. No. 12284 Exp. 3-31-93 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

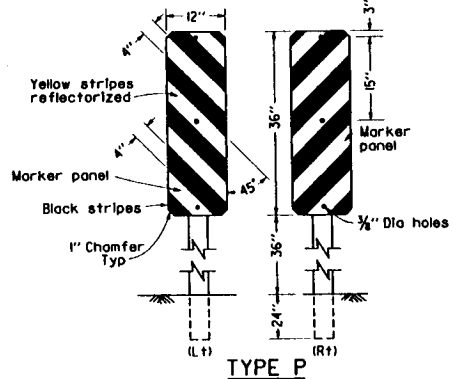
NOTES

1. See Standard Plan A73A for additional object markers.

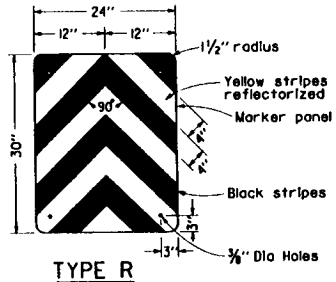


SNOW POLE BRACKET

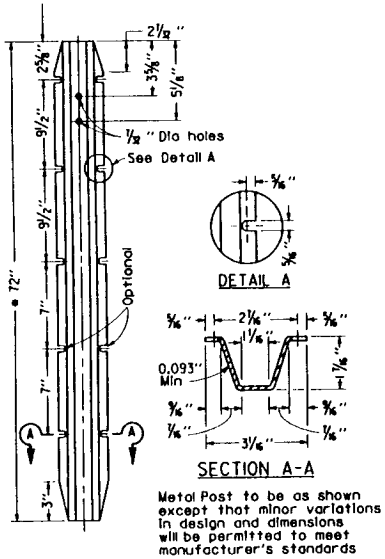
TWO PLATE POST MOUNT



TYPE P
OBJECT MARKER
(METAL POST OR 4"X4" WOOD POST)



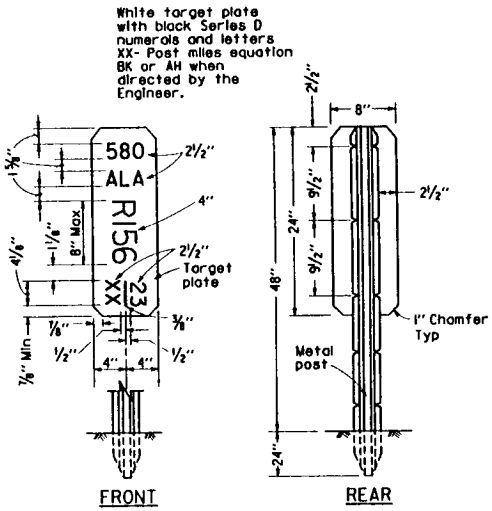
TYPE R
OBJECT MARKER
PANEL



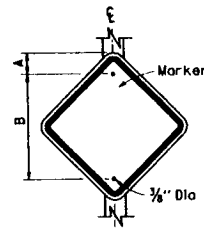
Metal Post to be as shown except that minor variations in design and dimensions will be permitted to meet manufacturer's standards

*96" for Type P object marker and 36" for Type K object marker

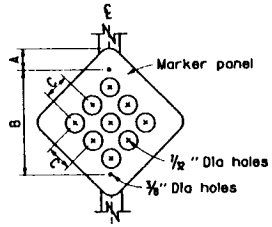
METAL POST DETAIL



MILEPOST MARKER



TYPE N-1,N-2,N-3
OBJECT MARKERS



TYPE N-4,N-5
OBJECT MARKERS

TYPE N	SIZE	BORDER WIDTH	MARGIN WIDTH	A	B	C	CORNER RADIUS
-1,-2,-3	18"x18"	3/8"	3/8"	3"	18"	—	1 1/2"
-4,-5	18"x18"	—	—	3"	18"	4"	1 1/2"

N-1. Yellow reflective background with black border.
N-2. Red reflective background with black border.
N-3. Orange reflective background with black border.
N-4. Yellow background with 9-3" yellow reflectors.
N-5. Red background with 9-3" red reflectors.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

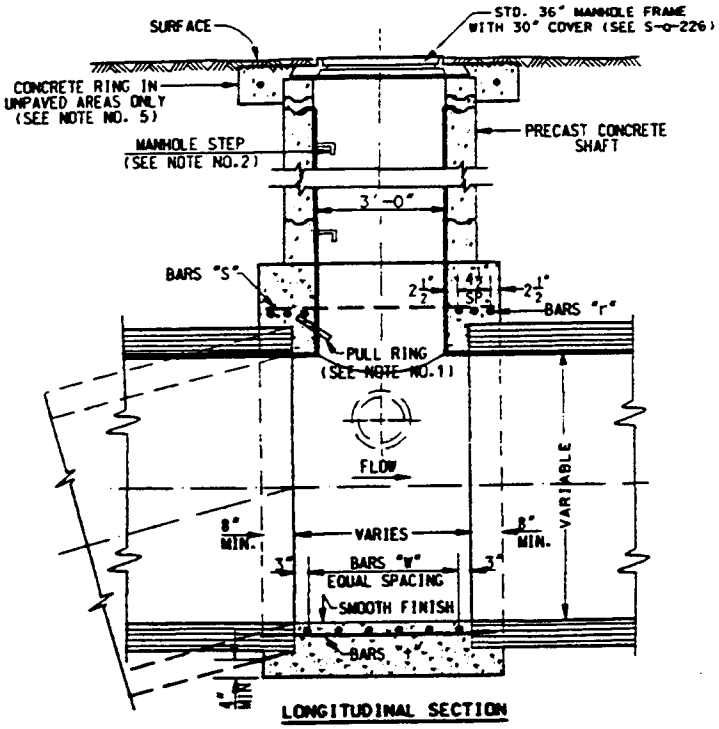
MARKERS

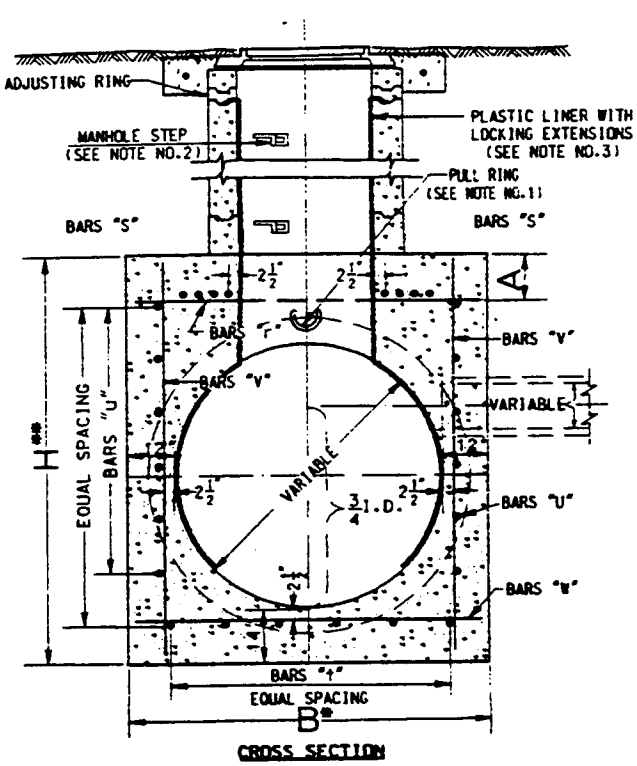
NO SCALE

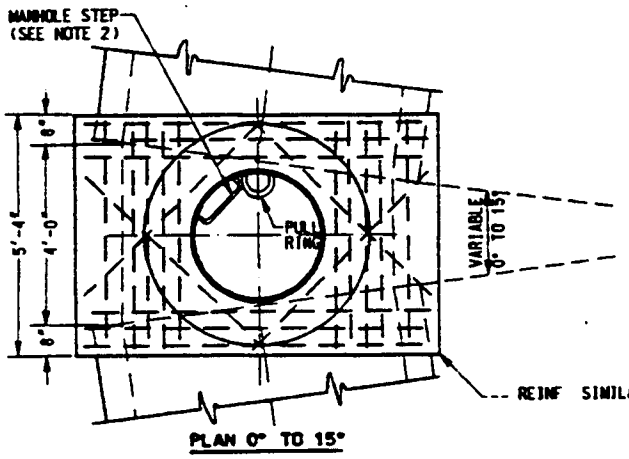
A73B

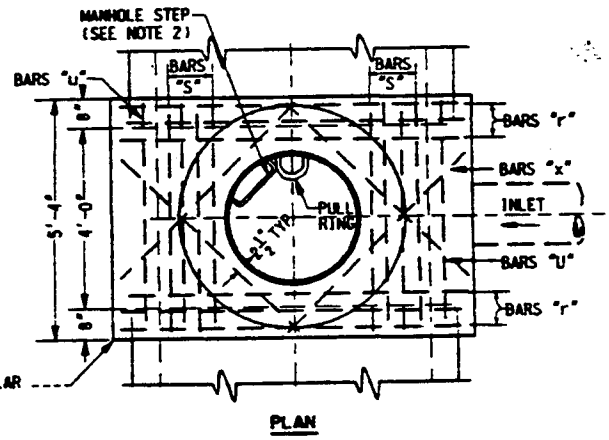
STD. PLAN A73B

20









* DIMENSION B SHALL BE THAT LISTED IN THE TABLE OF REINFORCING BARS OR OUTSIDE DIAMETER OF PIPE PLUS 12". WHICHEVER IS GREATER.

** DIMENSION H SHALL BE THAT LISTED IN THE TABLE OF REINFORCING BARS OR THE DIMENSION NECESSARY TO PROVIDE 6" BETWEEN THE BOTTOM OF THE PIPE AND THE BOTTOM OF THE MANHOLE AND 2½" BETWEEN THE TOP OF THE PIPE AND THE CENTERLINE OF THE REINFORCING STEEL. WHICHEVER IS GREATER.

FOR 48" TO 96" PIPE

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY
OFFICE OF CHIEF ENGINEER

CHARLES W. CARRY
CHIEF ENGINEER
DECEMBER, 1994

STANDARD MANHOLE, TYPE "B"

STANDARD DRAWING
S-a-202
SHEET 1 OF 4

TABLE OF REINFORCING BARS (PART 1)

PIPE DIAM.	DEPTH TO INVERT	A	B*	H**	BARS "r"		BARS "s"		BARS "t"	
					NUMBER & SIZE	LENGTH	NUMBER & SIZE	SPACING & LENGTH	NUMBER & SIZE	LENGTH
48"	10' to 30'	11"	6'-0"	6'-11"	6 - #6	5'-8"	2 - #6	5'-0"	5 - #4	5'-0"
	31' to 50'	14"	6'-0"	7'-2"	6 - #7	5'-8"	2 - #7	5'-0"	5 - #4	5'-0"
51"	10' to 30'	11"	6'-3"	7'-2"	6 - #7	5'-11"	4 - #6	3" Ctrs 5'-0"	5 - #4	5'-0"
	31' to 50'	14"	6'-3"	7'-5"	6 - #7	5'-11"	4 - #7	3" Ctrs 5'-0"	5 - #4	5'-0"
54"	10' to 30'	11"	6'-6"	7'-5"	6 - #7	6'-2"	4 - #7	3" Ctrs 5'-0"	5 - #4	5'-0"
	31' to 50'	14"	6'-6"	7'-8"	6 - #7	6'-2"	4 - #8	3" Ctrs 5'-0"	5 - #4	5'-0"
57"	10' to 30'	12"	6'-9"	7'-9"	6 - #7	6'-5"	6 - #7	3" Ctrs 5'-0"	5 - #4	5'-0"
	31' to 50'	14"	6'-9"	7'-11"	6 - #8	6'-5"	6 - #8	3" Ctrs 5'-0"	5 - #4	5'-0"
60"	10' to 30'	12"	7'-0"	8'-0"	6 - #7	6'-8"	6 - #7	3" Ctrs 5'-0"	5 - #4	5'-0"
	31' to 50'	14"	7'-0"	8'-2"	6 - #8	6'-8"	6 - #8	3" Ctrs 5'-0"	5 - #4	5'-0"
63"	10' to 30'	12"	7'-3"	8'-3"	6 - #8	6'-11"	6 - #8	4" Ctrs 5'-0"	6 - #4	5'-0"
	31' to 50'	14"	7'-3"	8'-5"	6 - #8	6'-11"	6 - #9	4" Ctrs 5'-0"	6 - #4	5'-0"
66"	10' to 30'	13"	7'-6"	8'-7"	6 - #8	7'-2"	6 - #8	4" Ctrs 5'-0"	6 - #4	5'-0"
	31' to 50'	14"	7'-6"	8'-8"	6 - #9	7'-2"	6 - #9	4" Ctrs 5'-0"	6 - #4	5'-0"
69"	10' to 30'	13"	7'-9"	8'-10"	6 - #8	7'-5"	8 - #7	4" Ctrs 5'-0"	6 - #4	5'-0"
	31' to 50'	14"	7'-9"	8'-11"	6 - #9	7'-5"	8 - #8	4" Ctrs 5'-0"	6 - #4	5'-0"
72"	10' to 30'	13"	8'-0"	9'-1"	6 - #8	7'-8"	8 - #7	4" Ctrs 5'-0"	6 - #4	5'-0"
	31' to 50'	14"	8'-0"	9'-2"	6 - #9	7'-8"	8 - #8	4" Ctrs 5'-0"	6 - #4	5'-0"
78"	10' to 30'	13"	8'-6"	9'-8"	6 - #8	8'-2"	8 - #7	4" Ctrs 5'-0"	6 - #4	5'-0"
	31' to 50'	14"	8'-6"	9'-9"	6 - #9	8'-2"	8 - #8	4" Ctrs 5'-0"	6 - #4	5'-0"
84"	10' to 30'	15"	9'-0"	10'-4"	6 - #9	8'-8"	8 - #7	4" Ctrs 5'-0"	8 - #5	5'-0"
	31' to 50'	17"	9'-0"	10'-6"	6 - #9	8'-8"	8 - #8	4" Ctrs 5'-0"	8 - #5	5'-0"
90"	10' to 30'	18"	10'-0"	11'-1"	6 - #9	9'-8"	8 - #7	4" Ctrs 5'-0"	8 - #5	5'-0"
	31' to 50'	21"	10'-0"	11'-4"	6 - #9	9'-8"	8 - #8	4" Ctrs 5'-0"	8 - #5	5'-0"
96"	10' to 30'	21"	10'-8"	11'-10"	6 - #9	10'-4"	8 - #7	4" Ctrs 5'-0"	8 - #5	5'-0"
	31' to 50'	24"	10'-8"	12'-1"	6 - #9	10'-4"	8 - #8	4" Ctrs 5'-0"	8 - #5	5'-0"

* Dimension B shall be that listed in the Table of Reinforcing Bars or outside diameter of pipe plus 12", whichever is greater.

** Dimension H shall be that listed in the Table of Reinforcing Bars or the dimension necessary to provide 6" between the bottom of the pipe and the bottom of the manhole and 2½" between the top of the pipe and the centerline of the reinforcing steel, whichever is greater.

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY
OFFICE OF CHIEF ENGINEER

CHARLES W. CARRY
CHIEF ENGINEER
DECEMBER, 1994

STANDARD MANHOLE, TYPE "B"

STANDARD DRAWING
S-a-202
SHEET 2 OF 4

TABLE OF REINFORCING BARS (PART 2)

PIPE DIAM.	DEPTH TO INVERT	BARS "u"		BARS "v"		BARS "w"		BARS "y"	
		NUMBER & SIZE	LENGTH	NUMBER & SIZE	SPACING & LENGTH	NUMBER & SIZE	LENGTH	NUMBER & SIZE	LENGTH
48"	10' to 30'	10 - #4	5'-0"	12 - #4	12" Ctrs 6'-5"	6 - #4	5'-8"	4 - #4	4'-1"
	31' to 50'	10 - #4	5'-0"	12 - #5	12" Ctrs 6'-8"	6 - #6	5'-8"	4 - #5	4'-1"
51"	10' to 30'	10 - #4	5'-0"	12 - #4	12" Ctrs 6'-8"	6 - #4	5'-11"	4 - #4	4'-3"
	31' to 50'	10 - #4	5'-0"	12 - #5	12" Ctrs 6'-11"	6 - #6	5'-11"	4 - #5	4'-3"
54"	10' to 30'	10 - #4	5'-0"	12 - #4	12" Ctrs 6'-11"	5 - #5	6'-2"	4 - #4	4'-5"
	31' to 50'	10 - #4	5'-0"	12 - #6	12" Ctrs 7'-2"	6 - #6	6'-2"	4 - #5	4'-5"
57"	10' to 30'	10 - #4	5'-0"	12 - #4	12" Ctrs 7'-3"	5 - #5	6'-5"	4 - #4	4'-8"
	31' to 50'	10 - #4	5'-0"	12 - #6	12" Ctrs 7'-5"	6 - #6	6'-5"	4 - #5	4'-8"
60"	10' to 30'	12 - #4	5'-0"	12 - #4	12" Ctrs 7'-6"	5 - #5	6'-8"	4 - #4	4'-10"
	31' to 50'	12 - #4	5'-0"	12 - #6	12" Ctrs 7'-8"	6 - #7	6'-8"	4 - #5	4'-10"
63"	10' to 30'	12 - #4	5'-0"	12 - #5	12" Ctrs 7'-9"	6 - #6	6'-11"	4 - #4	5'-0"
	31' to 50'	12 - #4	5'-0"	12 - #7	12" Ctrs 7'-11"	6 - #8	6'-11"	4 - #5	5'-0"
66"	10' to 30'	12 - #4	5'-0"	12 - #5	12" Ctrs 8'-1"	6 - #6	7'-2"	4 - #4	5'-2"
	31' to 50'	12 - #4	5'-0"	12 - #7	12" Ctrs 8'-2"	6 - #8	7'-2"	4 - #5	5'-2"
69"	10' to 30'	12 - #4	5'-0"	12 - #5	12" Ctrs 8'-4"	6 - #6	7'-5"	4 - #4	5'-4"
	31' to 50'	12 - #4	5'-0"	12 - #7	12" Ctrs 8'-5"	6 - #8	7'-5"	4 - #5	5'-4"
72"	10' to 30'	12 - #4	5'-0"	12 - #6	12" Ctrs 8'-7"	6 - #6	7'-8"	4 - #4	5'-6"
	31' to 50'	12 - #4	5'-0"	12 - #7	12" Ctrs 8'-8"	7 - #8	7'-8"	4 - #5	5'-6"
78"	10' to 30'	12 - #4	5'-0"	12 - #6	12" Ctrs 9'-2"	6 - #7	8'-2"	4 - #5	5'-10"
	31' to 50'	12 - #4	5'-0"	12 - #8	12" Ctrs 9'-3"	7 - #8	8'-2"	4 - #5	5'-10"
84"	10' to 30'	12 - #5	5'-0"	12 - #6	12" Ctrs 9'-10"	7 - #8	8'-8"	4 - #5	6'-2"
	31' to 50'	12 - #7	5'-0"	12 - #8	12" Ctrs 10'-0"	9 - #9	8'-8"	4 - #5	6'-2"
90"	10' to 30'	14 - #7	5'-0"	12 - #7	12" Ctrs 10'-7"	9 - #8	9'-8"	4 - #5	6'-6"
	31' to 50'	14 - #7	5'-0"	12 - #9	12" Ctrs 10'-10"	9 - #10	9'-8"	4 - #5	6'-6"
96"	10' to 30'	14 - #7	5'-0"	12 - #7	12" Ctrs 11'-4"	9 - #9	10'-8"	4 - #5	6'-10"
	31' to 50'	14 - #7	5'-0"	12 - #9	12" Ctrs 11'-7"	10 - #10	10'-8"	4 - #5	6'-10"

NOTES:

1. ALL MANHOLES SHALL BE PROVIDED WITH A STANDARD PULL RING IN ACCORDANCE WITH S-a-220. THE PULL RING SHALL BE LOCATED 6" ABOVE THE TOP OF THE PIPE ON THE UPSTREAM SIDE OF THE MANHOLE AND ALONG THE AXIS OF THE DOWNSTREAM OUTLET. WHERE THE MANHOLE IS TO BE USED AS A DOWNSTREAM SIPHON MANHOLE, IT SHALL BE PROVIDED WITH AN ADDITIONAL STANDARD PULL RING, BUT LOCATED 6" ABOVE THE TOP OF THE PIPE ON THE DOWNSTREAM SIDE OF THE MANHOLE AND ON THE CENTERLINE OF THE UPSTREAM SIPHON PIPE.

2. MANHOLE STEPS SHALL BE IN ACCORDANCE WITH S-a-209 AND SHALL BE UNIFORMLY SPACED NOT MORE THAN 16" APART. THE TOP STEP SHALL BE PLACED 16" BELOW THE MANHOLE FRAME. THE BOTTOM MANHOLE STEP SHALL BE PLACED NOT LESS THAN 16" NOR MORE THAN 24" ABOVE THE PULL RING. THE MANHOLE STEP SHALL PROJECT 5". THE MANHOLE STEPS SHALL BE PLACED SUCH THAT THEY ARE ADJACENT TO BUT NOT INTERFERING WITH ACCESS TO THE PULL RING.

3. THE MANHOLE SHALL BE PROVIDED WITH PLASTIC LINER WITH LOCKING EXTENSIONS. THE PLASTIC LINER AND THE PLASTIC LINER INSTALLATION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. THE LINER SHALL EXTEND FROM THE BOTTOM OF THE ADJUSTING RINGS TO A POINT IN THE CHANNEL MATCHING THE BOTTOM OF THE LINER ON THE LINED PIPE. LINER RETURNS SHALL BE PROVIDED WHERE THE LINER TERMINATES AT THE ADJUSTING RING. THE JOINT BETWEEN THE LINER AND THE STAINLESS STEEL STEPS AND PULL RINGS SHALL BE THOROUGHLY SEALED WITH URETHANE MASTIC AS MANUFACTURED BY ALLIED COATINGS CO., HOLLYWOOD, CALIFORNIA (213) 650-6077, OR APPROVED EQUAL. APPLICATION OF SEALANT AND PREPARATION OF SURFACES SHALL BE IN STRICT CONFORMANCE WITH THE MANUFACTURER'S DIRECTIONS.

4. UNLESS OTHERWISE SPECIFIED, ALL CONCRETE SHALL BE 560-B-3250 AND ALL REINFORCING BARS SHALL BE DEFORMED BARS CONFORMING TO ASTM-615 GRADE 40.

5. IN UNPAVED AREAS, A 12" WIDE BY 12" HIGH CONCRETE RING WITH #3 REBAR, 30 DIAMETER LAP SHALL BE PROVIDED AROUND THE MANHOLE FRAME.

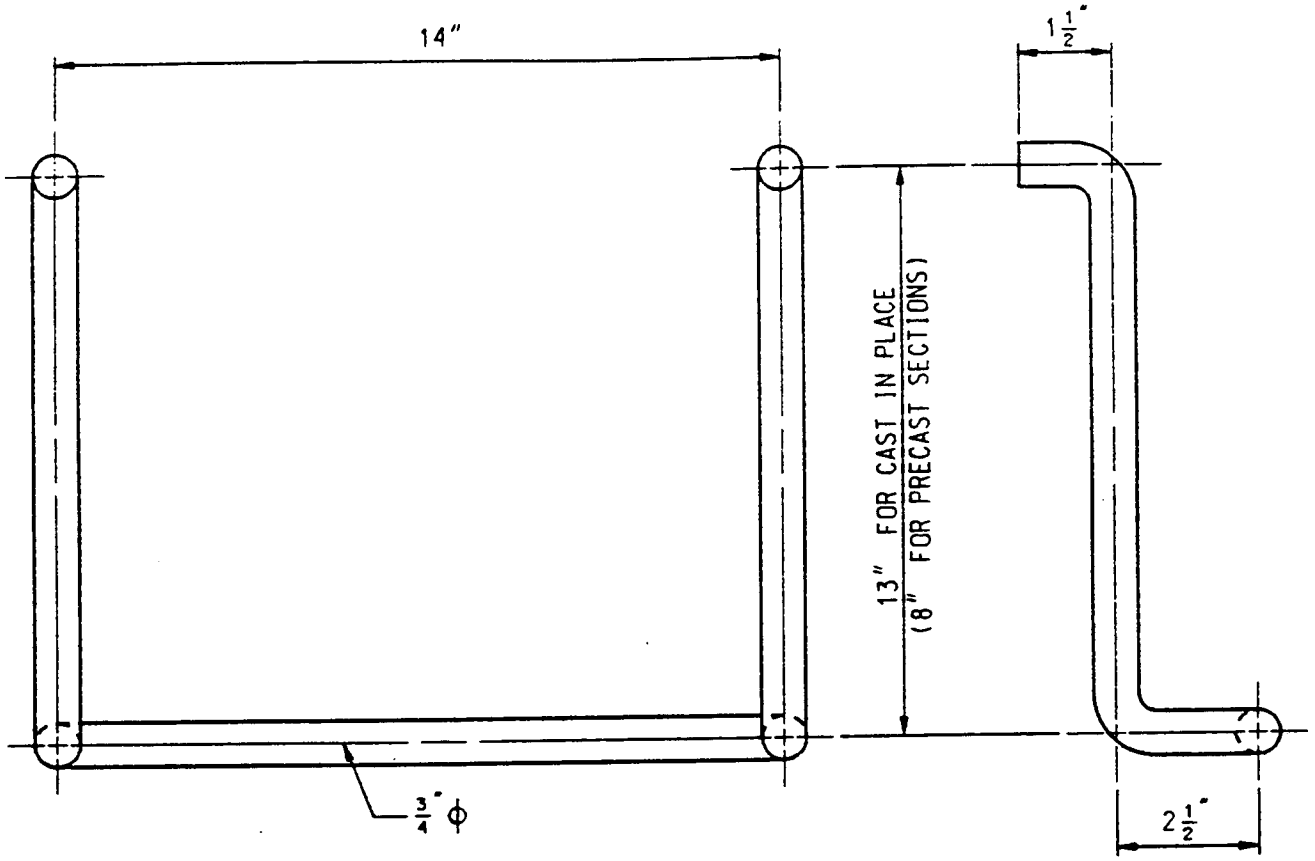
6. EXCEPT AS NOTED HEREON, THE PRECAST UNITS SHALL BE MANUFACTURED AND TESTED IN ACCORDANCE WITH ASTM 478. THE CURING OF THE PRECAST UNITS SHALL CONFORM TO SECTION 207-2.7 OF THE STANDARD SPECIFICATIONS. AS AN ALTERNATE, THE UNITS MAY BE CURED USING SATURATED STEAM FOR A MINIMUM OF 12 HOURS FOLLOWED BY 6 DAYS OF WATER CURING OR MEMBRANE CURING. IF THE UNITS ARE CURED BY THE ALTERNATE METHOD, THEY SHALL NOT BE SHIPPED PRIOR TO 8 DAYS AFTER CASTING NOR UNTIL THE CONCRETE HAS ATTAINED A STRENGTH OF 3,500 PSI. THE RISER SECTIONS MAY BE REINFORCED OR UNREINFORCED. REINFORCED SECTIONS SHALL HAVE A MINIMUM WALL THICKNESS OF 5" AND UNREINFORCED SECTIONS SHALL HAVE A MINIMUM WALL THICKNESS OF 6". JOINTS SHALL BE TONGUE AND GROOVE AND SHALL BE ASSEMBLED USING CLASS "B" MORTAR. THE MORTARED JOINTS SHALL BE FLUSH AND TROWELED SMOOTH.

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY
OFFICE OF CHIEF ENGINEER

CHARLES W. CARRY
CHIEF ENGINEER
DECEMBER, 1994

STANDARD MANHOLE, TYPE "B"

STANDARD DRAWING
S-a-202
SHEET 4 OF 4



STEPS IN PLASTIC LINED MANHOLES AND STRUCTURES AND ANY STEPS IN 24- OR 30-INCH RISERS SHALL BE MADE FROM STAINLESS STEEL CONFORMING TO ASTM A-276, TYPE 316.

FOR ALL OTHER STEPS, THE CONTRACTOR MAY SUBSTITUTE ONE OF THE FOLLOWING REINFORCED COPOLYMER POLYPROPYLENE PLASTIC MANHOLE STEPS (OR APPROVED EQUAL).

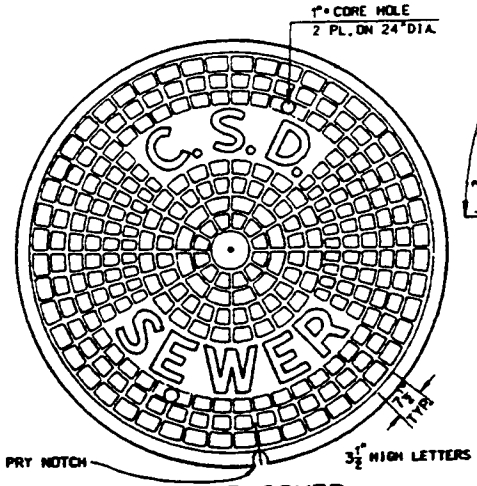
MANUFACTURER	STEP I.D.
M.A. INDUSTRIES, INC.	PS2-PFS
LANE INTERNATIONAL INC.	P13850
SOUTHWEST CONCRETE PRODUCTS	X038PS
H. BOWEN COMPANY, INC.	BOWCO 93813

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY
OFFICE OF CHIEF ENGINEER

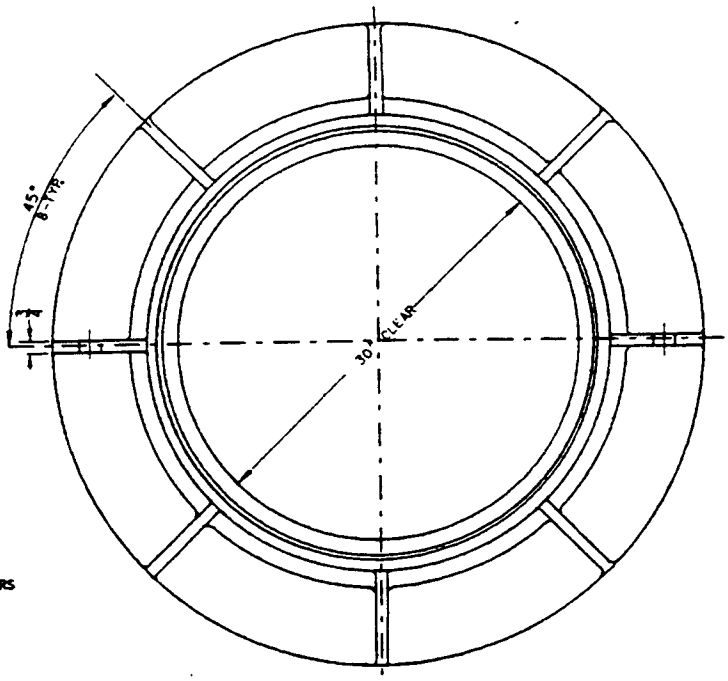
CHARLES W. CARRY
CHIEF ENGINEER
DECEMBER, 1994

STANDARD MANHOLE STEP

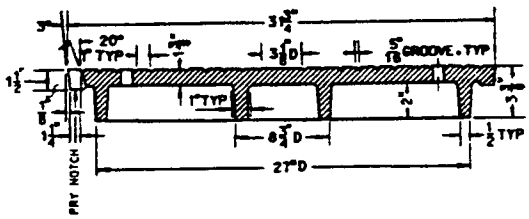
STANDARD DRAWING
S-a-209
SHEET 1 OF 1

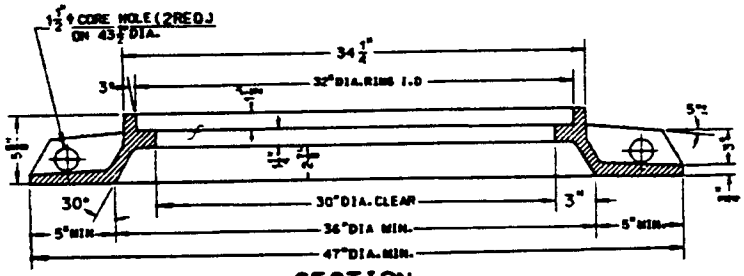


PLAN OF COVER
TOP VIEW



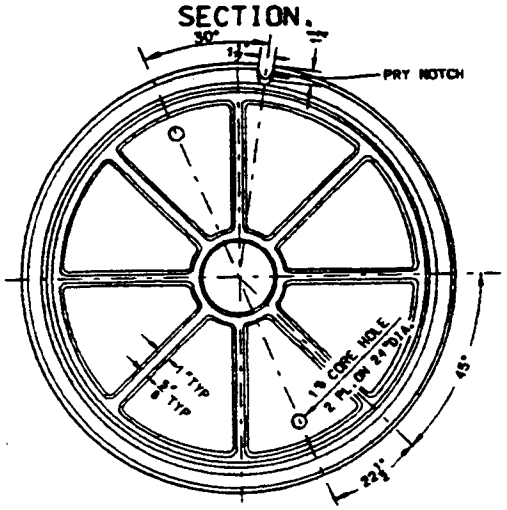
PLAN OF FRAME





SECTION

SECTION



PLAN OF COVER
BOTTOM VIEW

NOTES:

1. THE CAST IRON USED SHALL CONFORM WITH ASTM A-48 CLASS 35.
2. THE FRAME AND COVER SHALL BE COATED WITH ASPHALTUM OR BITUMINOUS PAINT AFTER TESTING AND INSPECTION.
3. MANHOLE FRAME AND COVER SHALL BE TESTED FOR ACCURATE FIT PRIOR TO DELIVERY AND SHALL BE MARKED IN SETS.
4. ALL CASTINGS SHALL COMPLY WITH SECTION 206-3 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION. LATEST EDITION.

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY
OFFICE OF CHIEF ENGINEER

CHARLES W. CARRY
CHIEF ENGINEER
DECEMBER, 1984

STANDARD 36" MANHOLE FRAME WITH 30" COVER

STANDARD DRAWING
S-a-226
SHEET 1 OF 1

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SECTION 01250

MEASUREMENT AND PAYMENT

1. GENERAL.

The contract price and payment shall constitute full compensation as stated in the Contract Clause, CONTRACT PRICES - BIDDING SCHEDULES, for completion of the work. No separate payment will be made for any material or work covered in this specification, but not specifically mentioned as part of a bid items, and all costs into which the work pertains or considered incidental to all bid items. As stated in Contract Clause, SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION, the word "provided" shall be understood to mean "furnished and installed" when used in this section or elsewhere in the technical sections.

2. CLEAR SITE AND REMOVE OBSTRUCTIONS.

Payment for Clear Site and Remove Obstructions will be made at the applicable contract price, which payment shall constitute full compensation for clearing, grubbing within the channel rights-of-way and at fill sites inside the construction easement and removal of all indicated obstructions within the project limits. Except as otherwise specified, payment for clearing and removal work includes applicable earthwork; removing and plugging abandoned lines; removal of existing asphalt concrete pavement and asphalt curb, flood control features (stone, reinforced concrete, removal of fencing, grouted stone work); removal of miscellaneous trash and debris; removal of vegetation; removal of materials for salvage; protection, replacement or restoration of utilities, fences, walls and features indicated to remain; and the disposal of all materials.

3. EXCAVATION.

3.1 Measurement. A survey of the site shall be made prior to commencement of work, and all measurements will be based on this survey without regard to any changes in the site that may be made between the excavation lines and grades indicated on the drawings or staked in the field and ground surfaces as indicated by the above mentioned surveys. The actual slopes as excavated may be greater or less than those indicated or staked depending on the materials excavated and methods used in performing the work, but such alterations shall not change the measurement for payment from the original lines as specified herein. The quantity of directed excavation necessary for the removal of unsuitable foundation material as specified shall be included in the measurement of the excavation where the unsuitable soils are encountered. Quantities will be computed in cubic yards by the average end area method and the planimeter will be considered a precise instrument for measurement of plotted cross sections. All excavation outside of excavation lines shown on the drawings or staked in the field will be considered as being for the convenience of the Contractor.

3.2 Payment.

3.2.1 Payment for Excavation will be made at the applicable contract price, which payment shall constitute full compensation for excavation and disposal of excavated materials.

3.2.2 Unsatisfactory Soils. No separate payment will be made for the excavation and disposal of unsatisfactory soils. When such excavation is directed, payment will be included in the applicable contract price for the items of work under which the unsuitable soils are encountered. When there is no applicable contract item an adjustment will be made.

3.2.3 Excavation for Structures. No separate payment will be made for excavation for structures. All costs therefore shall be included in the applicable contract item to which the work applies.

3.2.4 Trenches. No separate payment will be made for excavation of utility and pipe trenches. All costs therefore shall be included in the applicable contract prices for the items to which the work applies.

4. COMPACTED FILL.

4.1 Measurement for compacted fill will be made between the excavation and structure lines and the fill limit lines, or between the ground lines and fill lines, as indicated or staked in the field. Quantities will be computed in cubic yards by the average end area method and the planimeter will be considered a precise instrument for measuring plotted cross sections.

4.2 Payment.

4.2.1 Payment for Compacted Fill will be made at the applicable contract price, which payment shall constitute full compensation for obtaining, placing and compacting the fill.

4.2.2 Fill for Structures. No separate payment will be made for fill or backfill about structures. All such costs shall be included in the applicable contract prices for items to which the work applies.

4.2.3 Trenches. No separate payment will be made for backfilling of pipelines. All costs in connection therewith shall be included in the contract prices for items to which the work applies.

4.2.4 Subgrade Preparation. No separate payment will be made for subgrade preparation and all costs in connection therewith shall be included in the contract prices for items to which the work applies.

4.2.5 No separate payment will be made for borrow.

5. STONE PROTECTION.

5.1 Measurement. The quantity of stone to be paid for will be number of tons (2,000 pounds), determined by scale weights, acceptably placed within the lines and grades shown on the drawings or directed by the Contracting Officer.

5.2 Payment for Riprap will be made at the applicable contract unit prices, per ton, which constitute full compensation for obtaining and placing the stone, complete.

5.3 Payment for Landscape Stone will be made at the applicable contract price, which payment shall constitute full compensation for obtaining and placing the stone, complete.

5.4 Payment for Grouted Landscape Stone will be made at the applicable contract price, which payment shall constitute full compensation for obtaining and placing the grouted landscape stone(grout and landscape stone), complete.

5.5 Payment for Grouted Stone will be made at the applicable contract unit price, per ton, which constitute full compensation for obtaining and placing the grouted stone(grout and stone), complete.

6. CONCRETE.

6.1 Concrete Parapet Wall. Payment for the Concrete Parapet Wall shall be made at the applicable contract price, which payment shall constitute full compensation for earthwork, concrete (including Portland cement), steel reinforcement, wall texturing, joints, waterstops, form work, complete. Payment shall not include removal of stonework; asphalt, and concrete channel lining for which other applicable payment items are provided.

6.2 Concrete Pavement. Payment for the Concrete Pavement shall be made at the applicable contract price, which payment shall constitute full compensation for earthwork, concrete (including Portland cement), steel reinforcement, form work, joints, complete. Payment shall not include removal of stonework, and concrete channel lining for which other applicable payment items are provided.

6.3 Concrete Channel Lining. Payment for the Concrete Channel Lining shall be made at the applicable contract price, which payment shall constitute full compensation for earthwork, concrete (including Portland cement), steel reinforcement, form work, joints, complete. Payment shall not include construction of concrete channel invert and removal of existing stonework and concrete channel lining for which other applicable payment items are provided.

6.4 Concrete Channel Invert. Payment for the Concrete Channel Invert shall be made at the applicable contract price, which payment shall constitute full compensation for earthwork, concrete (including Portland cement), steel reinforcement, form work, joints, complete. Payment shall not include construction of concrete channel lining and removal of existing stonework and concrete channel lining for which other applicable payment items are provided.

6.5 Concrete Driveway. Payment for the Concrete Drive Ways shall be made at the applicable contract price, which payment shall constitute full compensation for earthwork, concrete (including Portland cement), steel reinforcement, form work, joints, concrete curb, complete. Payment shall not include excavation and compacted fill, for which other applicable payment items are provided.

6.6 Concrete Local Depression. Payment for the Concrete Local Depression shall be made at the applicable contract price, which payment shall constitute full compensation for earthwork, concrete (including Portland cement), steel reinforcement, form work, joints, concrete local depression, complete. Payment shall not include excavation and compacted fill, for which other applicable payment items are provided.

7. RETAINING WALL.

Payment for each Retaining Wall shall be made at the applicable contract price, which payment shall constitute full compensation for earthwork, concrete (including Portland cement), steel reinforcement, wall texturing, joints, form work, complete. The earthwork included shall be only that earthwork which is located outside the limits of earthwork for which other payment is provided. Payment will not include fencing for which other applicable payment items are provided.

8. DOWN DRAIN.

Payment for Down Drain shall be made at the applicable contract price, which payment shall constitute full compensation for earthwork, concrete (including Portland cement), steel reinforcement, form work, joints, complete. Payment shall not include excavation and compacted fill, for which other applicable payment items are provided.

9. ASPHALT CONCRETE PAVEMENT.

9.1 Measurement. The unit of measurement for the asphalt concrete pavement will be the ton (2,000 pounds). The Contractor shall weigh each load on a certified platform scale and shall furnish the Contracting Officer with duplicate Weighmaster's Certificates showing the actual net weights. One tickets shall be furnished to the plant inspector and one ticket to the inspector at the construction site. The bituminous mixture shall be weighed after mixing and no deduction will be made for the weight of bituminous material incorporated therein. Asphalt concrete used for the convenience of the Contractor will not be measured for payment.

9.2 Payment for Asphalt Concrete Pavement will be made at the applicable contract price, which payment shall constitute full compensation for asphalt concrete surfacing, curbs, dike, and overside drains including prime coat, tack coat, redwood header, subgrade preparation and appurtenant work.

10. AGGREGATE BASE COURSE.

10.1 Measurement. The unit of measurement for the Aggregate Base Course will be the ton (2,000 pounds). The Contractor shall weigh each load on a certified platform scale and furnish the Contracting Officer with Duplicate Weighmaster's Certificates showing the actual net weights. One ticket shall be furnished to the plant inspector and one ticket to the inspector at the construction site. Aggregate Base Course used for the convenience of the Contractor will not be measured for payment.

10.2 Payment for Aggregate Base Course will be made at the applicable contract price, which payment shall constitute full compensation for aggregate base course, complete.

11. 6-INCH ASPHALT CONCRETE CURB/BERM.

11.1 Measurement. The unit of measurement for the 6-Inch Asphalt Concrete Curb/Berm will be the linear foot along the flow line.

11.2 Payment for 6-Inch Asphalt Concrete Curb/Berm will be made at the applicable contract price, which payment shall constitute full compensation for the curb and berm installation, complete.

12. DECOMPOSED GRANITE. Payment for Decomposed Granite will be made at the applicable contract unit price, which payment shall constitute full compensation for the decomposed granit, complete.

13. ACCESS ROAD DRAIN. Payment for Access Road Drain will be made at the applicable contract unit price, which payment shall constitute full compensation for the access road drains, complete, including ACO drain channel, vine pocket, grate, pipe, check valve, formwork, concrete(including Portland cement), steel reinforcement and concrete slurry.

14. SAFETY RAILING

14.1 Measurement of Safety Railing will be made to the nearest linear foot horizontally along the centerline from end-to-end of the railing in place.

14.2 Payments for Safety Railing will made at the applicable contract price, which payment shall constitute full compensation for the safety railing, complete.

15. BREAKAWAY SAFETY RAILING.

15.1 Measurement of Breakaway Safety Railing will be made to the nearest linear foot horizontally along the centerline from end-to-end of the railing in place.

15.2 Payments for Breakaway Safety Railing will made at the applicable contract price, which payment shall constitute full compensation for the breakaway safety railing, complete.

16. FENCING

16.1 Measurement of Chain Link Fencing and Ornamental Fencing will be made to the nearest linear foot horizontally along the centerline from end-to-end of the fence in place. Temporary fencing will not be included in the measurement.

16.2 Payment for Chain Link Fencing and Ornamental Fencing will be made at the applicable contract price, which payment shall constitute full compensation for furnishing and installing the fencing, complete in place.

17. GATES. Payment for Chain Link Maintenance, Ornamental Maintenance and Ornamental Pedestrian Gates will be made at the applicable contract price, which payment shall constitute full compensation for the gates, complete. Payment for Ornamental Maintenance Gates shall include one pair of bollards for each set of gate.

18. REINFORCED CONCRETE STAIRWAYS, LEFT LEVEE - STATIONS 392+50, 371+00, 367+75, 350+00, 311+50, 271+50, AND 245+61. Payment for the stairways will be made at the applicable contract price, which payment shall constitute full compensation for stairway, complete, including concrete(including Portland cement), steel reinforcement, and railing. See APWA Standard Plan 640-1 in Section 01200.

19. HYDROSEEDING. Payment for Seeding Operations will be made at the applicable contract price which payment shall constitute full compensation for the grading, tillage, soil amending, fertilizing, seeding, mulching, establishing, and maintaining of areas to be seeded.

20. HYDROSEEDING MAINTENANCE. Payment for Hydroseeding Maintenance will be made at the applicable contract price, which payment shall constitute full compensation for maintenance during the establishment period of the hydroseeded area of twelve(12) months.

21. TREE, SHRUB, GROUNDCOVER, AND VINE PLANTINGS. Payment for Tree, Shrub, Groundcover, and Vine Plantings will be made at the applicable contract price, which payment shall constitute full compensation for obtaining, planting, and maintaining all trees, shrubs, ground cover, and vines, complete.

22. TREES, SHRUBS, GROUND COVERS, AND VINES PLANTING MAINTENANCE. Payment for Trees, Shrubs, Ground Covers and Vine Plantings Maintenance will be made at the applicable contract price, which payment shall constitute full compensation for maintenance during the establishment period of the Trees, Shrubs, Ground Covers, and Vine Plantings of 12 months.

23. JUTE MESH. Measurement of jute mesh will be by square foot placed. Payment for jute mesh will be made at the applicable contract price, which payment shall constitute full compensation for obtaining and constructing, complete.

24. IRRIGATION SYSTEM. Payment for Irrigation System will be made at the applicable contract price, which payment shall constitute full compensation for the irrigation system, complete in place, including trenching, bedding, and backfilling. Payment will include all costs for electrical system for irrigation controller.

25. BENCHES, BICYCLE RACKS, PADS AND SIGN PEDESTALS. Payment for Benches, Bicycle Racks, Pads and Sign Pedestals will be made at the applicable contract price, which payment shall constitute full compensation for providing the benches, bicycle racks

and concrete pads and sign pedestals, complete, including concrete and steel reinforcement.

26. BICYCLE TRAIL STRIPING AND SIGNING.

Payment for Bicycle Trail Striping and Signing will be made at the applicable contract price, which payment shall constitute full compensation for providing bicycle trail striping and signing.

27. BICYCLE TRAIL CLOSURE AND DETOUR.

Payment for Bicycle Trail Closure and Detour will be made at the applicable contract price, which payment shall constitute full compensation for providing the closure and detours, including, striping, temporary barricades, signing, fences, and restoration of the closure and detour areas upon completion of the work.

28. UTILITY RELOCATION/RECONSTRUCTION

28.1 INLET STRUCTURE OF DIVERSION CHANNEL, STA 397+75, LEFT BANK. Payment for Inlet Structure of Diversion Channel will be made at the applicable contract price, which payment shall constitute full compensation for the inlet and outlet structures, reinforced concrete pipes, trash rack and automatic flap gates, complete in place; including demoliton, earthwork, concrete, steel reinforcement, reinforced concrete pipes, trash rack and automatic flap gates. The earthwork included shall be only that earthwork which is located outside the limits of earthwork for which other payment is provided.

28.2 ADJUST TO GRADE. Payment for Adjust To Grade will be made at the applicable contract price, which payment shall constitute full compensation for the adjustment to grade of valves, covers, manholes, etc., complete, including demolition and earthwork.

29. SWIFT-WATER RESCUE ANCHOR DEVICE. Payment for Swift-water Rescue Anchor Device will be made at the applicable contract price, which payment shall constitute full compensation for the eyenut anchors, painted yellow circles and “blue dots”, complete, including demolition, earthwork, concrete(including Portland cement) and epoxy adhesive.

30. SIDE DRAINS. Payment for Side Drains will be made at the applicable contract price, which payment shall constitute full compensation for the reinforced concrete pipes, steel pipes, concrete collars, automatic flap gates, outlet structures, types 1, 2 and 3 inlets, and concrete gutter, complete, including demolition, earthwork, concrete(including Portland cement) and steel reinforcement. The earthwork included shall be only that earthwork which is located outside the limits of earthwork for which other payment is provided. Payment for Side Drains at Stations 91+98, 88+11 and 84+71 shall include the construction of concrete gutter. Payment shall not include Drainage Outlets for which other payment is provided.

31. SEWER VAULT STRUCTURE. Payment for Sewer Vault Structure will be made at the applicable contract price, which payment shall constitute full compensation for reinforced concrete and modifying sewer manhole, complete, including demolition, earthwork, concrete(including Portland Cement) and steel reinforcement. The earthwork included shall be only that earthwork which is located outside the limits of earthwork for which other payment is provided.

32. QUALITY ASSURANCE VEHICLES. Payment for Quality Assurance Veicles will be made at the applicable contract price, which payment shall constitute full compensation for providing the vehicles and all labor and materials required for their operation and maintenance.

33. AS-BUILT DRAWINGS. Payment for As-built drawings will be made at the applicable contract price, which payment shall constitute full compensation for providing the project as-built drawings.

-- End of Section --

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ATTACHMENT: ENG FORM 4025

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SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUBMITTAL CLASSIFICATION

Submittals are identified with submittal description (SD) numbers and are classified as follows:

1.1.1 Government Approved

Governmental approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

1.1.2 Information Only

All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

1.2 APPROVED SUBMITTALS

The Contracting Officer’s approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the CQC requirements of this contract, is responsible for the dimensions and design of adequate connections, details and satisfactory construction of all work. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be given consideration unless accompanied by an explanation as to why a substitution is necessary.

1.3 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies as specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, notice as required under the Contract Clause entitled "Changes" shall be given promptly to the Contracting Officer.

1.4 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units

of weights and measures used on all submittals shall be the same used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) representative and each respective transmittal form (ENG Form 4025) shall be stamped, signed, and dated by the CQC representative indicating actions taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with Manufacturer’s Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

3.2 SUBMITTAL REGISTER (ENG FORM 4288)

At the end of this section is one set of ENG Forms 4288 listing each item of equipment and material for which submittals are required by the specifications. The Contractor will also be given the submittal register as a diskette containing the computerized Eng Form 4388 and instructions on the use of the diskette. Columns “d” through "r" have been completed by the Government; the Contractor shall complete columns "a" and "s" through "u" and submit the forms (hard copy plus associated electronic file) to the Contracting Officer for approval within 15 calendar days after Notice to Proceed. The Contractor shall keep this diskette up to date and shall submit it to the Government together with the monthly payment request. The approved submittal register will become the scheduling document and will be used to control submittals throughout the life of the contract. This register and the progress schedules shall be coordinated.

3.3 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 15 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delays, damages or time extensions will be allowed for time lost in late submittals.

3.4 TRANSMITTAL FORM (ENG FORM 4025)

The sample transmittal form (ENG Form 4025) attached to this section shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care will be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

3.5 SUBMITTAL PROCEDURE

Submittals shall be made as follows:

3.5.1 Procedures

Submittals shall be made to the Contracting Officer’s Representative. Two copies of submittals for information only are required. Six copies are required for all other submittals.

3.5.2 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

3.6 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

3.7 GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. Four copies of the submittal will be retained by the Contracting Officer and two copies of the submittal will be returned to the Contractor.

3.8 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. These submittals will be used for information purposes. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications and will not prevent the Contracting Office from requiring removal and replacement if nonconforming material is incorporated in the work. This does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or check testing by the Government in those instances where the technical specifications so prescribe.

3.9 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

CONTRACTOR

(Firm Name)

_____ Approved

_____ Approved with corrections as noted on submittal data and/or attached sheets(s).

SIGNATURE: _____

TITLE: _____

DATE: _____

-- End of Section --

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(ER 415-1-10)

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				DATA	DRAWINGS	INSTRUCTIONS	SCHEDULES	STATEMENTS	REPORTS	CERTIFICATES	SAMPLES	RECORDS	INFORMATION ONLY	GOVERNMENT APPROVED		SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	CODE	DATE	SUBMIT TO GOVERN MENT	CODE	DATE	
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y
		SECTION 01200 GENERAL REQUIREMENTS																						
		12.1.4	SAFETY PLAN						X					X										
		15	AS BUILT DRAWINGS		X									X										
		SECTION 01430 ENVIRONMENTAL PROTECTION																						
		1.2.1	ENVIRONMENTAL PROTECTION PLAN						X					X										
		SECTION 1451 CONTRACTOR QUALITY CONTROL																						
		3.2	QUALITY CONTROL PLAN						X					X										
		3.11	PROJECT MANAGEMENT SYSTEM						X					X										
		SECTION 02200 EXCAVATION																						
		1.5.1	BRACING/SHARING		X									X										

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a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y
		SECTION 02215 GEOTEXTILES USED AS FILTERS																						
		2.1.4	MILL CERTIFICATE							X			X											
		SECTION 02222 EXCAVATION, TRENCHING AND BACKFILLING FOR UTILITY SYSTEMS																						
		1.3.1	FIELD DENSITY TESTS						X					X											
		SECTION 02241 AGGREGATE BASE COURSE																						
		1.4.1	EQUIPMENT	X									X											
		1.4.2	SAMPLING AND TESTING						X					X											
		1.4.5	WAYBILLS AND DELIVERY TICKETS									X		X											
			COARSE AGGREGATES									X			X										
		SECTION 02250 FILLS AND SUBGRADE PREPARATION																						
		1.3.1	FIELD DENSITY TEST						X					X											

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a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y
		SECTION 02551 BITUMINOUS PAVING																						
		1.2.1	TEST RESULTS						X					X										
		1.2.2	WAYBILLS AND DELIVERY TICKETS									X		X										
		SECTION 02558 BITUMINOUS TACK COAT																						
		1.2.1	TEST						X					X										
		1.2.2	WAYBILLS AND DELIVERY TICKETS									X		X										
		SECTION 02559 BITUMINOUS PRIME COAT																						
		1.2	WAY BILLS AND DELIVERY TICKETS									X		X										
		1.3	TEST	X										X										

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a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y
		SECTION 02580 PAVEMENT MARKINGS																						
		1.2.1	EQUIPMENT LIST	X										X										
		1.2.1	INSTRUCTIONS	X										X										
		1.2.1	MATERIALS TEST						X					X										
		1.2.1	VOLATILE ORGANIC							X				X										
			COMPOUND VOC CONTENT																					
		SECTION 02605 LANDSCAPE STONE																						
		1.2.1	FIELD SAMPLE								X			X										
		3.2.3	SCALE TICKETS									X		X										

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a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y
		SECTION 02720 STORM DRAINAGE SYSTEM																						
		1.2	FRAME AND COVER							X				X										
		1.2	PLACING PIPE			X								X										
		1.2	PIPELINE TESTING							X				X										
		1.2	HYDROSTATIC TEST							X				X										
		1.2	DENSITY							X				X										
		1.2	PIPE								X			X										
		SECTION 02811 IRRIGATION SYSTEMS																						
		1.3	FRAMED INSTRUCTIONS	X									X											
		1.3	CATALOG DATA	X									X											
		1.3	FIELD TESTS						X					X										
		1.3	OPERATION & MAINTENANCE MANUAL									X	X											

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a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y
		SECTION 02935 HYDROSEEDING																						
		1.2	DELIVERY SCHEDULE					X					X											
		1.2	APPLICATION OF PESTICIDE			X		X						X										
		1.2	MAINTENANCE REPORT						X				X											
		1.2	HYDROSEED EST.						X				X											
		1.2	CERTIFICATES							X			X											
		1.2	SEED							X				X										
		1.2	FERTILIZER							X			X											
		1.2	PESTICIDE							X				X										
		1.2	TOP SOIL							X				X										

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a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y
		SECTION 02950 TREE, SHRUBS, GROUNDCOVER, AND VINES																						
		1.2	EROSION CONTROL																					
			MATERIAL	X								X												
		1.2	APPLICATION OF PESTICIDE				X						X											
		1.2	DELIVERY OF PESTICIDE					X					X											
		1.2	SOIL TEST						X					X										
		1.2	PERCOLATION TEST						X					X										
		1.2	TOP SOIL							X				X										
		1.2	SOIL AMENDMENTS							X			X											
		1.2	PLANTS							X				X										
		1.2	PESTICIDE							X				X										
		1.2	PLANT ESTABLISHMENT PERIOD									X	X											
		1.2	MAINTENANCE REPORT									X		X										
		1.2	INSTRUCTIONS									X	X											

SUBMITTAL REGISTER

(ER 415-1-10)

CONTRACT NO.

TITLE AND LOCATION
RIO HONDO CHANNEL IMPROVEMENT
WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD

CONTRACTOR

SPECIFICATION SECTION

TRANSMITTAL NO.	ITEM NO.	SPECIFICATION PARAGRAPH NO.	DESCRIPTION OF ITEM SUBMITTED	TYPE OF SUBMITTAL									CLASSIFICATION		REVIEWER	CONTRACT SCHEDULE DATES			CONTRACTOR ACTION			GOVERNMENT ACTION		REMARKS
				DATA	DRAWINGS	INSTRUCTIONS	SCHEDULES	STATEMENTS	REPORTS	CERTIFICATES	SAMPLES	RECORDS	INFORMATION ONLY	GOVERNMENT APPROVED		SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	CODE	DATE	SUBMIT TO GOVERNMENT	CODE	DATE	
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y
		SECTION 03101 FORMWORK FOR CONCRETE																						
		1.3.1	MATERIALS	X									X											
		1.3.2	SHOP DRAWINGS		X									X										
		1.3.3	FIELD INSPECTION						X				X											
		1.3.3	FORMWORK NOT SUPPORTING																					
			WEIGHT OF CONCRETE						X				X											
		SECTION 03150 EXPANSION, CONTRACTION, AND CONSTRUCTION JOINTS																						
		1.2	REPORTS						X				X											
		1.2.2	SAMPLES								X		X											

SUBMITTAL REGISTER

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a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y
		SECTION 03210 STEEL BARS AND WELDED WIRE FABRIC FOR CONCRETE REINFORCEMENT																						
		1.3.1	FABRICATION PLACEMENT		X									X										
		1.3.2	BUTT SPLICES					X						X										
		1.3.3	MATERIALS									X		X										
		SECTION 03301 CAST IN PLACE STRUCTURAL CONCRETE																						
		1.5.1.1	CONCRETE MIXTURE PROPORTIONS						X					X										
		1.5.1.2	CEMENT AND POZZOLAN						X					X										
		1.5.1.3	GROUT						X					X										
		1.5.1.3.2	PREPACKAGED MATERIAL						X					X										
		1.5.1.3.3	MIXTURE PROPORTIONS						X					X										
		1.5.2.1	IMPERVIOUS SHEET CURING MATERIALS								X			X										
		1.5.2.2	AIR-ENTRAINING ADMIXTURE								X			X										
		1.5.2.3	CURING COMPOUND								X			X										

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				DATA	DRAWINGS	INSTRUCTIONS	SCHEDULES	STATEMENTS	REPORTS	CERTIFICATES	SAMPLES	RECORDS	INFORMATION ONLY	GOVERNMENT APPROVED		SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	CODE	DATE	SUBMIT TO GOVERN MENT	CODE	DATE	
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y
		1.5.3.1	BATCH PLANT	X										X										
		1.5.3.2	MIXERS	X										X										
		1.5.3.3	CONVEYING EQ.	X										X										
		1.5.3.4	PLACING	X										X										
		1.5.3.5	JOINT CLEANUP	X										X										
		1.5.3.5	CURING	X										X										
		1.5.3.7	HOT WEATHER REQUIREMTS	X										X										
		SECTION 05500 MISCELLANEOUS METALS																						
		1.2.1	SHOP DRAWINGS		X									X										
		1.2.1.2	MATERIALS CERT.							X				X										
		1.2.1.3	PAINTS SYSTEM						X					X										

SUBMITTAL REGISTER

(ER 415-1-10)

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a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y
		SECTION 16375 ELECTRICAL DISTRIBUTION SYSTEM, UNDERGROUND																						
		1.3.1	CATALOG DATA	X										X										
		1.3.1	MATERIAL, EQUIPMENT AND																					
			FIXTURE LISTS	X										X										
		1.3.2	ELECTRICAL DISTRIBUTION																					
			SYSTEM		X									X										
		1.3.3	FACTORY TEST						X				X											
			FIELD TESTING						X					X										
			TEST REPORT						X					X										
		1.3.4	MATERIAL AND EQUIPMENT							X			X											

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE *(Read instructions on the reverse side prior to initiating this form)*	DATE	TRANSMITTAL NO.

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS *(This section will be initiated by the contractor)*

TO:	FROM:	CONTRACT NO.	CHECK ONE: ☐ THIS IS A NEW TRANSMITTAL ☐ THIS IS A RESUBMITTAL OF TRANSMITTAL _____
SPECIFICATION SEC. NO. *(Cover only one section with each transmittal)*	PROJECT TITLE AND LOCATION		CHECK ONE: THIS TRANSMITTAL IS FOR ☐ FIO ☐ GOV'T. APPROVAL

ITEM NO. *a.*	DESCRIPTION OF ITEM SUBMITTED *(Type size, model number/etc.)*	MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. *(See Instruction no. 8) c.*	NO. OF COPIES *d.*	CONTRACT REFERENCE DOCUMENT		FOR CONTRACTOR USE CODE *g.*	VARIATION *(See Instruction No. 6) h.*	FOR CE USE CODE *i.*
				SPEC. PARA. NO. *e.*	DRAWING SHEET NO. *f.*			

REMARKS

I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as other wise stated.

_____

NAME AND SIGNATURE OF CONTRACTOR

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED *(List by Item No.)*	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.

2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.

3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288-R for each entry on this form.

4. Submittals requiring expeditious handling will be submitted on a separate form.

5. Separate transmittal form will be used for submittals under separate sections of the specifications.

6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications--also, a written statement to that effect shall be included in the space provided for "Remarks".

7. Form is self-transmittal, letter of transmittal is not required.

8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.

9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

A -- Approved as submitted.

B -- Approved, except as noted on drawings.

C -- Approved, except as noted on drawings. Refer to attached sheet resubmission required.

D -- Will be returned by separate correspondence.

E -- Disapproved (See attached).

F -- Receipt acknowledged.

FX -- Receipt acknowledged, does not comply as noted with contract requirements.

G -- Other *(Specify)*

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

(Reverse of ENG Form 4025-R)

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SECTION 01430
ENVIRONMENTAL PROTECTION

PART 1 GENERAL

1.1 DEFINITIONS

For the purpose of this specification, environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for but not limited to aesthetic, cultural and/or historical purposes. The control of environmental pollution and damage requires consideration of air, water, and land, and includes management of visual aesthetics, noise, solid waste, radiant energy and radioactive materials, as well as other pollutants.

1.2 ENVIRONMENTAL PROTECTION REQUIREMENTS

These requirements are to provide and maintain, during the life of the contract, environmental protection. Plan for and provide environmental protective measures to control pollution that develops during normal construction practice. Plan for and provide environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project; and comply with Federal, State, and local regulations pertaining to the environment, including but not limited to water, air, and noise pollution; biological resources, transportation, recreation, public services and utilities; geology, seismicity and soils; hazardous materials and waste management. The Contractor will comply with all the requirements of the Environmental Protection Plan as described in this section. This plan will be applicable prior to and during the channel modifications from Whittier Narrows Dam to Firestone Boulevard in the Rio Hondo Channel.

1.2.1 Environmental Protection Plan

Within two (2) days after Notice of Award, the Contractor will meet with Mr. Ron Lockman (213)452-3847 of the Contracting Officer and Ms. Suzanne Ho (626)458-4322 of the Los Angeles County Department of Public Works, to develop a mutual understanding relative to compliance with this provision and administration of the environmental protection program. Within seven (7) calendar days after the Notice of Award, the Contractor will submit in writing an Environmental Protection Plan covering all mitigation measures contained herein for the protection of the environment as identified and discussed further in this section. Within seven (7) days after the Contractor submits the Environmental Protection Plan, the Government will either approve or submit to the Contractor required revisions. Within seven (7) days of submission of required revisions, the Contractor will submit the revised Environmental Protection Plan to the Government for approval. The Contractor shall not mobilize equipment nor initiate any construction prior to Government approval of the Environmental Protection Plan. Approval of the Contractor's plan will not relieve the Contractor of his responsibility for adequate and continuous control of pollutants and other environmental protection measures. The Government reserves the right to make changes in the Contractor's environmental protection plan and operations as necessary to maintain satisfactory Environmental Protection Performance. The Contractor will be in complete environmental compliance with the Los Angeles County Drainage Area Environmental Impact Report dated December 19, 1994 and the Los Angeles County Drainage Area Review Environmental Impact Statement dated June 1992. The Government reserves the right to halt construction operations at the expense of the Contractor should the Contractor be found in non-compliance with the environmental protection plan approved by the Contracting Officer. Construction operations would resume when compliance is met. The environmental protection plan

(with details for each requirement specified in later provisions of Section 01430) will include but not be limited to the following:

a) a list of Federal, State and local laws, regulations, and permits concerning environmental protection, pollution control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations and permits.

b) a commuter trip reduction plan to achieve an average ridership of 1.5 individuals.

c) written procedures limiting the idling of construction equipment at construction sites to two minutes or less.

d) written procedures to be followed to suspend the use of powered equipment during second-stage smog alerts within one hour of notification.

e) a list of all construction equipment anticipated to be used on the project, listing the make and model, type of fuel used (diesel, gasoline, or alternative), and engine specifications (e.g. engine size, horsepower, etc.).

f) a written description of the installation of a wind-speed monitoring device capable of recording and displaying peak 10-second gusts during each hour of construction.

g) a specification list of parapet wall coatings indicating the volatile organic compound content of all paint formulations.

h) a map of proposed sediment barriers to be in place during construction.

i) a list of waste asphalt, concrete, and masonry disposal locations at sites away from the construction site/construction staging sites.

j) a list of all noise producing equipment and vehicles listing the type of noise pollution control device used on each piece of equipment and identifying equipment for which noise control devices are unavailable.

k) written procedures limiting the use of noise-producing signals (e.g. safety warnings, etc.), public address systems, music systems, and any other noise producing equipment.

l) a list of noise specifications for all pile drivers used on the project.

m) a list of sensitive receptor locations where noise levels may exceed 14 decibels (A-weighted) and where sound barrier walls may need to be constructed.

n) anticipated traffic flow patterns and changes due to construction activities in the areas impacted by the construction project, access to bus stops, sidewalk access plans, locations of recreational trails, safety structures, and rest stop/seating areas.

O) locations of signs both on the construction site (limiting speeds to 25 m.p.h. and construction hours to 7:00 AM to 7:00 PM weekdays and 9:00 AM to 6:00 PM Saturdays), and on impacted streets as part of the overall traffic mitigation plan.

p) a construction routing plan identifying the locations of access driveways to both construction staging sites and construction sites, and the locations of preferred traffic routes to and from construction staging sites and construction sites.

q) a map identifying the equipment refueling and maintenance areas, locations of hazardous waste storage, materials stockpiles, mobile equipment staging, and parking areas.

r) a list of transit agency contacts.

s) a hazardous materials transport plan identifying preferred traffic routes to and from the construction staging sites and construction sites.

t) records documenting the training of all project construction workers involved in the use of hazardous materials took place prior to the start of project construction.

u) an Emergency Response Plan including but not limited to locations of hazardous waste spill kits, specific procedures for hazardous materials spill containment and public notification, and notification of local emergency service providers.

1.2.1.1 Laws, Regulations, and Permits

The Contractor will prepare a list of Federal, State and local laws, regulations, and permits concerning environmental protection, pollution control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations and permits. These shall include, but not be limited to, all Caltrans permits, and local city ordinance compliance permits (e.g., business, excavation and hauling permits), NPDES and 401 permits which have already been obtained by the Government as discussed in Section 3.3, shall also be listed. Permits identified will be obtained by the Contractor and submitted along with the initial list to the Contracting Officer within seven (7) calendar days after the Notice of Award.

1.2.1.2 Protection of Features

The Contractor will determine methods for the protection of features to be preserved within authorized work areas. The Contractor will prepare a listing of methods to protect resources needing protection, i.e., trees, shrubs, vines, grasses and ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, archaeological and cultural resources. These methods, if not discussed in detail in the Environmental Protection Plan identified in this section, will be added and submitted to the Contracting Officer within seven calendar days after the Notice of Award.

1.2.1.3 Procedures

The Contractor will implement procedures to provide the required environmental protection and to comply with the applicable laws and regulations. The Contractor will set out procedures to be followed to correct pollution of the environment due to accident, natural causes or environmental protection plan as described more in detail in this section. Failure to comply with the approved environmental protection plan could result in payment delays.

1.2.1.4 Permit or License

The Contractor will obtain all needed permits or licenses. Copies of these permits and/or licenses will be submitted to the Contracting Officer within seven (7) calendar days after the Notice of Award date.

1.2.1.5 Drawings

The Contractor will include drawings showing locations of any proposed temporary excavations or embankments for haul roads, material storage areas, structures,

sanitary facilities, stockpiles of earth materials, and disposal areas for excess earth material and unsatisfactory earth materials as discussed and/or in addition to measures described further in this section.

1.2.1.6 Environmental Monitoring Plans

The Contractor will include environmental monitoring plans for the job site which incorporate land, water, air, traffic, recreation, public service, hydrogeology, soils, hazardous materials/waste management and noise monitoring as described further in this section.

1.2.1.7 Traffic Control Plan

The Contractor will include a traffic control plan for the job site and other surrounding areas that would be used during construction hours for transport of materials, equipment, etc., as described further in this section.

1.2.1.8 Surface and Ground Water

The Contractor will establish methods of protecting surface and ground water during construction activities by methods described further in this section.

1.2.1.9 Work Area Plan

The Contractor will include a work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. The plan will include measures for marking the limits of use areas. This plan will be submitted to the Contracting Officer for review and approval within seven (7) calendar days after the Notice of Award.

1.2.1.10 Plan of Borrow Area

The Contractor will include a plan of the borrow area for the job site as discussed further in this section. This plan will be submitted to the Contracting Officer for review and approval within seven (7) calendar days after the Notice of Award.

1.2.1.11 Emergency Response Plan

An emergency response plan will be prepared for responding to hazardous materials spills at all project construction sites. The plan will identify actions to immediately control hazardous materials spills, and procedures to notify appropriate health officials.

The Contractor will submit to the Contracting Officer for review and approval an emergency response plan. The plan should outline the response to be taken should an emergency involving but not limited to hazardous material spills at project construction and/or staging area sites occur during construction hours. The plan should identify actions to immediately control hazardous spills, and procedures to notify appropriate health officials, local jurisdictions and authorities. The plan should identify the lead Contractor representative to address an incident of this nature.

The plan should also include specific procedures for hazardous materials spill containment and public notification. The plan should also consider and address appropriate response measures to prevent and/or minimize the exposure of fish and wildlife resources in the lower River, construction workers, and nearby residents.

1.2.1.12 Noise Control Plan

The Contractor will develop a noise control plan. Noise control features and plans will be reviewed and approved by the Government. This plan will include the mitigation measures identified and discussed further in this section.

a. Noise-Control Devices on Construction Equipment/Vehicles
The Contractor will submit a list of all noise producing equipment and vehicles. The list will describe the type of noise control device used on each piece of equipment and identify equipment and vehicles for which noise control devices are not available or feasible as discussed further in this section.

b. Noise-Producing Signals, Public Address, and Music Systems
The Contractor will submit written procedures concerning the use of signals, public address systems, and music systems. The procedures shall specify that noise producing signals (including, but not limited to horns, whistles, alarms, and bells) will be limited to safety warnings. The procedures will also specify volume limitations on public address systems and music systems. The procedures will also specify that the Contracting Officer and/or representatives of the Contracting Officer can at anytime require any representative of the Contractor in non-compliance be removed from the site at the expense of the Contractor if the individual is not willing to abide by the requirements. The Contractor representative can resume work as soon as compliance is met. The procedures will be distributed to all construction supervisors, foreman and workers. It will be the Contractors responsibility to ensure that all Contractor Representatives are apprised of these noise limiting procedures.

1.2.1.13 Public Services and Utilities

The Contractor will send a schedule of project construction activities to all emergency service providers and utility companies near the project area within seven (7) calendar days after the Awarded contract date. The schedule will identify the date and location of proposed construction activities as discussed further in this section.

1.3 SUBCONTRACTORS

Assurance of compliance with this section by subcontractors will be the responsibility of the Contractor and subject to disciplinary action and/or shut down until compliance is met.

1.4 PERMITS OBTAINED BY CORPS OF ENGINEERS

The Corps of Engineers will not obtain any permits for this project. See Contract Clause entitled "PERMITS AND RESPONSIBILITIES".

1.5 REGULATORY REQUIREMENTS

The Contractor will comply with all state regulatory and statutory requirements. This shall include conditions as contained in the State of California Department of Transportation(Caltrans) Permit, City Permits, Regional Water Quality Control Board Waste Discharge and Section 401 Water Quality Certification, and the General Stormwater Construction Activity Permit. Copies of the Corps of Engineers-obtained permits are available from the Contracting Officer.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 PROTECTION OF ENVIRONMENTAL RESOURCES

The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract will be protected during the entire period of this contract. The Contractor will confine his activities to areas defined by the contract drawings and specifications. Environmental protection will also include the following subparagraphs.

3.1.1 Protection of Land Resources

After the Awarded contract date and prior to the beginning of any construction, the Contracting Officer will identify all land resources to be preserved within the Contractor's work area. The Contractor will not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, top soil, and land forms without special permission from the Contracting Officer. No ropes, cables, or guys will be fastened to or attached to any trees for anchorage unless specifically authorized by the Contracting Officer. Where such special emergency use is permitted, the Contractor will provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs.

3.1.1.1 Work Area Limits

Prior to any construction, the Contractor will mark the areas where no work is to be performed under this contract. Isolated areas within the general work area which are to be saved and protected will also be marked or fenced. Monuments and markers will be protected before construction operations commence and during all construction operations. Where construction operations are to be conducted during darkness, the markers will be visible during darkness. The Contractor will convey to his personnel the purpose of marking and/or protection of all necessary objects.

3.1.1.2 Protection of Landscape

Trees, shrubs, vines, grasses, land forms and other landscape features to be preserved, indicated and defined on the drawings submitted by the Contractor as a part of the Environmental Protection Plan, will be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques.

3.1.1.3 Reduction of Exposure of Unprotected Erodible Soils

Earthwork brought to final grade will be finished as indicated and specified. Side slopes and back slopes will be protected as soon as practicable upon completion of rough grading. All earthwork will be planned and conducted to minimize the duration of exposure of unprotected soils. Except in instances where the constructed feature obscures borrow areas, quarries and waste material areas, these areas will not initially be cleared in total. Clearing of such areas will progress in reasonably sized increments as needed to use the areas developed as approved by the Contracting Officer.

3.1.1.4 Temporary Protection of Disturbed Areas

Such methods as necessary will be utilized to effectively prevent erosion and control sedimentation, including but not limited to the following:

a. Retardation and Control of Runoff
Runoff from the construction site will be controlled by construction of diversion ditches, benches, and berms to retard and divert runoff to protected drainage courses, and the Contractor will also utilize any measures required by area-wide plans approved under Paragraph 208 of the Clean Water Act.

The contractor will abide by and implement the provisions outlined in the Storm Water Pollution Prevention Plan (SWPPP) required under the General Storm Water

Construction Activity Permit for the control of storm water. All diversion methods identified shall be used during construction operations. The Contractor has the option to use other methods equivalent to those methods identified in the SWPPP as approved and directed by the Contracting Officer. Should the Contractor choose to use this option, the methods approved by the Contracting Officer must be amended, by the Contractor, in the existing SWPPP to reflect those changes. A copy of the plan can be obtained from the Contracting Officer. All erosion control measures and other protection measures mentioned in this plan will be used for compliance and should be kept on-site at all times.

b. Erosion and Sedimentation Control Devices/Sediment Barriers

Sediment from construction areas and the construction staging site will be trapped in temporary or permanent sediment basins. The Contractor will institute effluent quality monitoring programs as required by state and local environmental agencies. The Contractor will submit a map and/or plan identifying the location of proposed sediment basins.

The Contractor will submit to the Contracting Officer for review and approval a map identifying locations of required sediment barriers (i.e. sandbags, silt fence, temporary containment dams) downstream of each construction site/operation resulting from construction activities to trap sediments.

The Contractor will either cover and secure or stabilize with controlled amounts of sprinkled water any areas of exposed soil (i.e. dirt stockpiles, dirt berms, temporary dirt roads) and/or bulk granular materials.

The Contractor will construct or install all temporary and permanent erosion sedimentation control features. Temporary erosion and sediment control measures such as berms, dikes, drains, sedimentation basins, grassing, and mulching will be maintained until permanent drainage and erosion control facilities are completed and operative.

3.1.1.5 Location of Contractor Facilities

The Contractor's field offices, staging areas, stockpiles, storage, and temporary buildings will be placed in areas designated on the contract drawings and approved by the Contracting Officer.

3.1.1.6 Temporary Excavation and Embankments

Temporary excavation and embankments will be controlled to protect adjacent areas from contamination.

3.1.1.7 Disposal of Solid Wastes

Solid wastes (excluding clearing debris) which includes broken concrete, asphalt, metal scrap, wood and debris from the modification work, will be placed in containers which are emptied on a regular schedule. All handling and disposal will be conducted to prevent contamination. All solid waste materials generated from construction activities will become the property of the contractor and will be removed from the construction site to an area approved by the Contracting Officer. The Contractor will transport all solid waste off all construction site and staging areas and dispose of it in compliance with Federal, State, and local requirements for solid waste disposal. All material will be handled as directed by the Contracting Officer.

The Contractor will submit to the Contracting Officer for review and approval, a list of off-site disposal locations for masonry, concrete, and/or asphalt. Disposal

will be prohibited at project construction sites. Masonry, concrete and/or asphalt will be contained and/or covered while waiting to be disposed.

3.1.1.8 Disposal of Chemical Wastes

Chemical wastes will be stored in corrosion resistant containers, removed from the work area and disposed of in accordance with Federal, State, and local regulations as discussed further in this section.

3.1.1.9 Disposal of Contaminated Soils

a. The Contractor will monitor excavations and areas of earthmoving for gaseous emissions and will sample and analyze any suspected materials. If materials are verified to be contaminated, notify the Contracting Officer for appropriate action. The Contractor will take remedial action based on the extent and magnitude of contaminated conditions as directed by the Contracting Officer.

b. Contaminated soils encountered during project construction will be disposed of in accordance with applicable local, state and federal regulations. Appropriate actions will be taken to minimize exposure to construction workers, recreational users, and nearby residents as discussed further in this section.

3.1.2 Tree Protection

All trees 1-1/2 inches in diameter or greater, that are to be removed by the Contractor can only be removed with specific authorization from the Contracting Officer. No ropes, cables, or guys shall be fastened to or attached to any tree(s) for anchorage unless specifically authorized by the Contracting Officer. Where such special use is permitted, the Contractor shall provide effective protection to prevent damage to the tree and other land and vegetative resources. Unless specifically authorized by the Contracting Officer, no construction equipment or materials shall be placed or used within the dripline of trees shown on the drawings to be saved. No excavation or fill shall be permitted within the dripline of trees to be saved except as shown on the drawings.

3.1.3 Commercial Borrow

Prior to bringing commercially obtained borrow material onsite, the Contractor shall provide the Contracting Officer with the location of the pit or pits, the names of the owners and operators, and the types and estimated quantities of materials to be obtained from each source.

3.2 HISTORICAL, ARCHAEOLOGICAL AND CULTURAL RESOURCES

Existing historical, archaeological and cultural resources within the Contractor's work area will be so designated by the Contracting Officer and precautions will be taken by the Contractor to preserve all such resources as they existed at the time they were pointed out to the Contractor. The Contractor will install all protection for these resources so designated on the contract drawings and will be responsible for their preservation during this contract. If during construction items of apparent archaeological or historical interest are discovered, they will be left undisturbed and the Contractor will report the find immediately to the Contracting Officer.

3.3 PROTECTION OF WATER RESOURCES

The Contractor will keep construction activities under surveillance, management and control to avoid pollution of surface and ground waters. Special management techniques as set out below will be implemented to control water pollution by the listed construction activities which are included in this contract.

The Contractor will keep copies on-site and comply with the conditions contained in the General Storm Water Construction Activity Permit (Storm Water Pollution Prevention Plan (SWPPP)) in compliance with NPDES requirements and the Section 401 Water Quality Certification obtained for this job. Copies of the permit and Storm Water Pollution Prevention Plan can be obtained from the Contracting Officer. Diversion techniques as described in the Storm Water Pollution Prevention Plan will be used during construction operations. Other diversion techniques equivalent to those may be used as approved by the contracting officer. Should other techniques be used, the SWPPP shall be amended by the Contractor as approved by the Contracting Officer.

3.3.1 Washing and Curing Water

Waste waters directly derived from construction activities will not be allowed to enter water areas. These waste waters will be collected and placed in retention ponds where the suspended materials can be settled out or the water evaporated in order to separate the pollutants from the water. The suspended materials shall be disposed of in accordance with Paragraph 3.1.1.7.

3.3.2 River Crossings

River crossings will be controlled during construction. Crossings will provide movement of materials or equipment which does not violate water pollution control standards of the Federal, State or local government.

3.3.3 Monitoring of Water Areas Affected by Construction: Water Contamination

a. Monitoring of water areas affected by construction activities will be the responsibility of the Contractor in order to prevent contamination of ground water and water along waterways. Shotcrete or gunite shall not be permitted to be used within the channel boundaries. All refuse, oil, greases, and other petroleum products; all toxic materials; all cement or concrete; or water containing such materials will be disposed of in a manner to prevent their entry into the ground water and water along the Rio Hondo Channel. These procedures will be reviewed and approved by the Contracting Officer. A log of monitoring activities will be submitted monthly for compliance as discussed further in this section.

b. A spill kit containing absorbent materials will be maintained at active construction site(s) a minimum of one spill kit present at each side of the channel. All employees will be familiar with the Emergency Response Plan, the procedures to utilize the spill kit, and the locations where they are kept.

3.3.4 Hazardous Materials Management

a. Hazardous Material Spill Response
If hazardous materials are released during construction, appropriate actions will be taken to minimize the exposure of fishery and wildlife resources in the lower Los Angeles River and San Pedro Bay, construction workers, and nearby residents as discussed further in this section.

b. Hazardous Materials Transport, Storage, and Handling Plans

The Contractor will submit to the Contracting Officer for review and approval a hazardous materials transport and storage plan. Hazardous materials would include, but not be limited to, contaminated soils, vehicle fuels and other petroleum products, and any paints and solvents. A Material Safety Data Sheet (MSDS) shall be maintained at the construction office by the Contractor for each material identified as a hazardous material by the Environmental Planning representatives from the Corps of Engineers and/or Los Angeles County Department of Public Works.

The hazardous materials storage plan will identify areas in which hazardous materials storage is proposed. This plan will prohibit hazardous materials storage near the channel and/or subdrains. Liquid fuels, paints, solvents, and other hazardous materials would not be stored or handled in bulk quantities in spreading basins and/or channels. All hazardous materials storage shall conform to current local, state, and federal laws and regulations.

The hazardous materials transport plan will identify preferred traffic routes for the transport of hazardous materials, and any special provisions required by current state and federal laws and regulations.

Hazardous material handling and use will be restricted only to trained personnel and only in accordance with the manufacturer’s recommendations, and state and federal regulations. The Contractor will provide proof that all project construction workers involved in the use of hazardous materials were trained prior to construction, including a description of the content of the training. The Contractor will submit a monthly list of persons known to have been exposed to hazardous materials (See Mitigation Monthly Logs).

The Contractor shall prepare and submit for review and approval an Emergency Response Plan for response to hazardous material spills at project construction sites. The Plan shall identify sections to immediately control hazardous material spills and procedures to notify health officials.

3.3.6 Equipment Refueling

The Contractor will submit to the Contracting Officer for review and approval a list of equipment and vehicle refueling and maintenance areas. Refueling and maintenance of equipment and vehicles in, near or on the levees of the flood control channel are prohibited. Refueling areas will be at least 25 feet from the top of the outermost edge of the channel levee. The Contractor will use only low sulfur content diesel fuel in all internal combustion engines used at the construction site. The Contractor is responsible for refueling all equipment and vehicles off-site or at the staging area designated on the plans. Other refueling site locations requested by the Contractor must be approved by the Contracting Officer prior to their use.

3.3.7 Street Sweeping

At the close of each working day, any materials as a result of construction activities, such as dirt tracked into the adjacent streets (streets for construction access) or laying uncontained in the construction areas are to be swept up. A log of street sweeping activities will be maintained and submitted monthly for compliance (See Mitigation Monthly Logs).

3.4 PROTECTION OF FISH AND WILDLIFE RESOURCES

The Contractor will keep construction activities under surveillance, management and control to minimize interference with, disturbance to and damage of fish and wildlife. Species that require specific attention along with measures for their protection will be listed for all workers by the Contractor prior to beginning of construction operations. The Contractor may contact the Environmental Planning representatives from the Corps of Engineers, Ron Lockmann at (213) 452-3847 and/or

from the Los Angeles County Department of Public Works, Suzanne Ho at (626) 458-4322 for assistance in preparing this list. This list shall be reviewed and approved by the Contracting Officer.

3.5 PROTECTION OF AIR RESOURCES

The Contractor shall keep construction activities under surveillance, management and control to minimize pollution of air resources. All activities, equipment, processes, and work operated or performed by the Contractor in accomplishing the specified construction shall be in strict accordance with the State of California and all Federal emission and performance laws and standards. Special management techniques as set out below shall be implemented to control air pollution by the construction activities which are included in the contract.

3.5.1 Particulates

Dust particles, aerosols, and gaseous by-products from all construction activities, processing and preparation of materials shall be controlled at all times, including weekends, holidays and hours when work is not in progress. The Contractor shall maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, spoil areas, borrow areas, and all other work areas within or outside the project boundaries free from particulates which would cause the air pollution standards mentioned in the paragraph: PROTECTION OF AIR RESOURCES to be exceeded or which would cause a hazard or a nuisance. Sprinkling, chemical treatment of an approved type or other methods will be permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated at such intervals as to keep the disturbed area damp at all times. The Contractor must have sufficient competent equipment available to accomplish this task. Particulate control shall be performed as the work proceeds and whenever a particulate nuisance or hazard occurs.

The Contractor shall water down active construction sites to prevent the uplift of dust at all construction site and staging areas at least two (2) times per day (See Mitigation Monthly Logs).

3.5.2 Hydrocarbons and Carbon Monoxide

Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to Federal and State allowable limits at all times.

The Contractor shall submit written procedures to limiting idling of construction equipment at construction sites and staging areas to the Contracting Officer. The procedures shall be distributed to all construction supervisors, foreman and workers. The Contractor shall be responsible for ensuring that all workers have been informed of these procedures.

The Contractor shall provide good maintenance of all equipment including but not limited to the proper tuning of off-road heavy equipment to reduce combustion sources of air emissions (See Mitigation Monthly Logs).

3.5.3 Odors

Odors shall be controlled at all times for all construction activities, processing and preparation of materials.

3.5.4 Monitoring Air Quality

All areas where air quality may be affected by the construction activities shall be monitored by the contractor.

3.5.4.1 Wind-speed Monitoring

The Contractor shall install wind-speed monitoring equipment at the construction site(s) at locations approved by the Contracting Officer. The monitoring equipment shall record and display the peak 10-second gust of wind during each hour of construction. A weekly summary shall be submitted for compliance and include periods when construction activities are curtailed in response to wind conditions along with the meteorological data. The Contracting Officer shall suspend excavation, grading, or other particulate-generating activities when winds (peak 10-second gusts) exceed 25 miles per hour. The contract completion date will be extended by the number of days activities are suspended.

3.5.5 Transport of Materials

All trucks hauling dirt, sediment or other lose materials from construction site are to be covered or shall maintain at least 2 feet of cover from the top edge of the truck to the material being hauled.

3.5.6 Smog Alerts

The Contracting Officer shall notify the Contractor when a second stage smog alert is in effect and order the suspension of the use of powered construction equipment or construction vehicles. The Contractor shall not claim shut-down time due to smog alerts. A log of these shut-down periods shall be prepared and submitted (See Mitigation Monthly Logs).

3.5.7 Trip Reduction Plan

The Contractor shall develop a trip reduction plan for all construction workers and employees who would be at the construction site to achieve an average vehicle ridership of 1.5 individuals per day. The trip reduction plan should be submitted to the Contracting Officer for review and approval.

3.5.8 Construction Equipment Idling

The Contractor shall submit written procedures to prohibit construction equipment at construction sites and staging areas from idling for more than two minutes when not in active use, to the Contracting Officer. The procedures shall be distributed to all construction supervisors and foreman.

3.5.9 Traffic Routing Plan

The Contractor shall develop a traffic routing plan identifying the most efficient traffic routes to the project site and staging areas and submit to the Contracting Officer for review and approval. The routes should consider community safety and route construction traffic on less-congested streets and away from residential streets.

The Contractor shall schedule all concrete and compacted fill material deliveries to occur between the hours of 7:00 a.m. and 7:00 p.m. weekdays and 9:00 a.m. and 6:00 p.m. Saturdays. Other construction material deliveries shall occur between the hours of 9:00 a.m. and 4:00 p.m. Monday through Saturday. No construction shall occur on Sundays.

Signing and flagmen shall be utilized where construction equipment interfaces with public traffic. The plan shall identify where the flagmen shall be situated to assist the flow of traffic during deliveries.

The plan shall also identify locations of construction site and construction staging site access driveways for construction workers, employees, and construction materials deliveries. The plan shall also include vehicular and pedestrian detour plans (including autos and buses), details of truck haul routes and site access points, details of roadway restriping and signage for vehicular and pedestrian circulation, including turn restrictions, lane assignments, speed limit and crosswalks, relocation of bus stops, and parking details, including restrictions and prohibitions. Access driveways shall be planned with the consideration of minimizing use of local residential streets for construction vehicles traffic. The Plan shall also establish the locations of haul routes on major streets or highways into and out of staging sites and construction sites and specifically near these sites.

3.5.10 Parapet Wall Coatings

The Contractor shall submit for review and approval the specifications of parapet wall coatings to the Contracting Officer. The specifications shall identify the volatile organic compound content of all paint formulations to be used. The Contractor shall use only paints with 250 grams per liter of these compounds, rather than those with 340 grams per liter.

3.5.11 Fuel Source for Equipment

The Contractor shall use methane, natural gas, or propane-powered equipment and vehicles, rather than gasoline or diesel-powered equipment or vehicles where feasible. The Contracting Officer shall approve the equipment not powered by methane, natural gas, or propane-powered equipment or vehicles prior to the start of construction. The Contractor shall submit a list of construction equipment anticipated to be used on the project to the Contracting Officer for review and approval. The list shall identify all construction equipment by type of fuel used (diesel, gasoline, or alternative fuel). The Contractor shall provide documentation of contact with Contractors and/or major equipment suppliers for each piece of equipment using gasoline or diesel fuel to indicate why the use of an alternative fuel is not feasible.

3.5.12 Bus Stop Access Plan

The Contractor shall contact the local transit agencies servicing the area to notify them of construction activities. If bus stops are affected, the Contractor shall coordinate with the transit agencies and prepare a bus stop access plan identifying the locations and anticipated duration of closure of bus stops. Bus stop access should be maintained wherever possible during the entire construction period. Install safety feature such as fencing, barriers, and/or warning signs if bus stops are affected. to allow adjacent bus stops to remain open. The Contractor shall submit to the Contracting Officer a list of transit agency contacts and written verification by the Contractor that bus stops would not be affected. Verification shall include the date, transit agency contact, map of routes to be used and statement of no effect.

3.5.13 Pedestrian Access

The Contractor shall submit to the Contracting Officer for review and approval a sidewalk access plan, identifying the location and anticipated duration of closure of sidewalks. The plan should maintain pedestrian access throughout the construction period by keeping sidewalks open as much as public safety considerations would permit. Install safety features such as the following but not

limited to fencing, barriers, and warning signs in construction areas to allow adjacent sidewalks to remain open.

3.6 NOISE

3.6.1 Mobile or Fixed Equipment

All mobile or fixed noise-producing equipment used on the project, which is regulated for noise output by a local, state, or federal agency, shall comply with such regulation as discussed further in this section.

3.6.2 Construction Equipment and Vehicles

All noise-producing construction equipment and vehicles using internal combustion engines shall be equipped with mufflers, and air-inlet silencers where appropriate, in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welder, air compressor) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.

3.6.3 Electrically-Powered Equipment

Electrically-powered equipment instead of pneumatic or internal combustion powered equipment shall be used, where feasible as discussed further in this section.

3.6.3.1 The Contractor shall submit a monthly summary of the number of electrically powered, pneumatically powered and internal combustion powered equipment used on the project as discussed further in this section (See Mitigation Monthly Logs).

3.6.4 Noise-Producing Construction Activity

Noise-producing construction activity shall comply with local noise control regulations.

3.6.5 Equipment and Vehicles

The Contractor shall submit to the Contracting Officer a list of all noise producing project equipment and vehicles. The list shall describe the type of noise control device used on each piece of equipment, and identify equipment and vehicles for which noise control devices are not available or feasible. All equipment shall provide noise-producing project equipment and vehicles using internal combustion engines with mufflers, and air-inlet silencers, that meet or exceed original factory specifications. Equip mobile or fixed “package” equipment (eg. arc-welders, air compressors) with shrouds and noise-control features that are readily available for that type of equipment. Anything used different from what is described shall be approved by the Contracting Officer in writing.

3.6.6 Stockpile of material

The Contractor shall submit to the Contracting Officer for review and approval a list of material stockpile (such as but not limited to concrete, asphalt, and masonry) and mobile equipment staging, parking, and maintenance areas. Stockpiles are defined as any type of material left temporarily on site and the property of the Contractor. These stockpiles should be located at least 50 feet away (or the greatest distance allowable as approved by the Contracting Officer if 50 feet is not available) from noise-sensitive receptors. Examples of receptors are identified as, but not limited to schools, hospitals, and residential areas.

3.6.7 Posted Traffic Signs

The Contractor shall post traffic signs at all construction and staging site areas limiting traffic speeds to 25 miles per hour. The signs shall be posted such that all construction workers and employees on the site can visually observe the sign from their vehicles at all access points of the project limits. The Contractor shall also place 25 miles per hour signs on local streets alongside or adjacent to the construction zone areas. Upon completion of the posting, the Contractor shall provide the Contracting Officer with a written statement stating that signs have been posted with the identification of all locations.

The Contractor shall post signs at all construction zones limiting construction hours to 7:00 a.m. - 7:00 p.m., weekdays, 9:00 a.m. - 6:00 p.m. on Saturdays. The Contractor shall submit, one day after posting, in writing to the Contracting Officer, written verification that the construction hours of operation signs were posted at all access locations in areas visible to all construction workers, employees and local residents. These hours of construction would apply, but not be limited to noisy maintenance activities and all debris and material transport. Where local jurisdictions impose more stringent limits on the hours of construction activity, these limits should take precedence and be followed.

The Contractor shall submit to the Contracting Officer for review and approval a list identifying locations prohibiting left-turns along the restriped street segment near construction staging sites so that the remaining roadway width not utilized by traffic accessing the staging site could be fully used for through-traffic flow. The Contractor shall post signs prohibiting left turns along the restriped street segment near construction staging sites, three (3) days prior to the start of construction. The Contractor shall submit to the Contracting Officer written verification that no left turn signs were posted at all appropriate construction site access points prior to project construction.

The Contractor shall submit to the Contracting Officer for review and approval a list of contacts made with local City jurisdictions during the permitting process.

The Contractor shall submit to the Contracting Officer for review and approval a construction traffic routing plan, identifying the locations of access driveways. Local streets are prohibited as routes leading to access driveways. Exceptions can apply where necessary and unavoidable and at the approval of the Contracting Officer.

3.6.8 Impact pile drivers

The Contractor shall submit to the Contracting Officer for review and approval a list of noise specifications for all impact pile drivers to be used during project construction. These specifications shall include the noise intensity and pile driver make and model. Impact pile drivers shall be limited to 95 decibels, A-weighted at a distance of 50 feet consistent with federal GSA “Construction Equipment and Practices” Guide Specifications.

3.7 TESTS

The Contractor shall establish and maintain quality control for environmental protection operations to assure compliance with contract requirements and maintain records of his quality control for all construction operations, including, but not limited to the following items. The Contractor shall record on daily reports any problems in complying with laws, regulations and ordinances and corrective action taken. Three copies of these records and tests, as well as the records of corrective action taken, shall be furnished to the Government as directed by the Contracting Officer.

3.7.1 Laws, Regulations and Ordinances

The Contractor must comply with all Federal, State, and local laws, regulations and ordinances concerning pollution control.

3.7.2 Protection of Land Resources

The Contractor shall prevent landscape defacement and provide post-construction clean-up and replacement, if necessary.

3.7.3 Protection of Water Resources

The Contractor shall prevent the contamination of Los Angeles River or other bodies of water with harmful chemicals; the Contractor shall dispose of waste materials; and the Contractor shall provide erosion control. A clean site shall be maintained at all times. Trash and all refuse generated by the construction workers and/or employees shall be disposed of properly.

3.7.4 Pollution Control Facilities

The Contractor shall provide for the maintenance of pollution control facilities. The Contractor shall conduct a training course on the maintenance of pollution control facilities.

3.8 INSPECTION

The Corps monitor will notify the Contracting Officer of non-compliance with the Environmental Protection Plan. The Contracting Officer, will notify the Contractor in writing of any observed non-compliance with the Contractor's Environmental Protection Plan. The Contractor shall, after receipt of such notice, inform the Contracting Officer of proposed corrective action and take such action as may be approved. If the Contractor fails to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions will be granted or costs or damages allowed to the Contractor for any such suspension.

3.9 POST CONSTRUCTION CLEANUP

When the project is completed and prior to final acceptance, the Contractor shall remove all constuction equipment, materials, vehicles, trash, debris and miscellaneous property of the Contractor and subcontractors, and employees of the Contractor and subcontractors from the site and restore all the areas used by the Contractor and subcontractors to the condition they were in prior to the Contractor occupying the site.

3.10 MAINTENANCE OF POLLUTION FACILITIES

The Contractor shall maintain all constructed facilities and temporary pollution control devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

3.11 TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL AND USE OF HAZARDOUS MATERIALS

The Contractor shall train personnel in all phases of environmental protection prior to construction. The training shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual,

and installation and care of facilities (instruments required for monitoring purposes) to insure adequate and continuous environmental pollution control.

The Contractor shall provide training to all construction workers involved in the use of hazardous materials. This training shall take place five calendar days prior to the start of construction with the Contracting Officer present. The Contractor shall submit to the Contracting Officer documentation that the training class occurred and provide an outline of the content of the course and a list and sign-in sheet of attendees. The training class would continue giving project construction workers orientation training on the start day of construction to ensure that the workers understood the training received five days earlier.

3.12 PROTECTION OF RECREATIONAL ACTIVITIES

3.12.1 Recreational Trail Plan

The Contractor is required to submit to the Contracting Officer for review and approval a recreational trail plan identifying phased closure and/or detour of the bicycle trail for the duration of the project (also see Section 1200- 9.6.4). The Signage shall include the closed reach, reach of the temporary detour/closure and duration of detour and/or closures. All signage for the temporary and/or closure for the bicycle trail, pedestrian paths, and equestrian trails shall be placed within seven (7) calendar days of the approved plan. The recreational trail plan shall include posting temporary detour and/or closure signs at construction sites, affected equestrian trail and bike path and all temporary access locations. Maintenance, closure and detours of a continuous trail throughout the construction period shall be provided for by the Contractor. Any closures and/or detours shall be coordinated with the Los Angeles County Department of Parks and Recreation, at Mr. Jim Parks at (213) 738-2965 and the Los Angeles County Department of Public Works, Mr. Greg Jacquez at (626) 458-3941.

3.13 PROTECTION FOR PUBLIC SAFETY

3.13.1 Project Construction Schedule

The Contractor shall send a schedule of project construction activities in writing to all emergency service providers and utility companies that service the project area and adjacent properties. Review and approval of this notification should be obtained from the Contracting Officer prior to submittance to the emergency service providers and utility companies. The schedule shall identify the date and location of proposed construction activities. The Contractor shall submit copies of the written notification to the Contracting Officer one day after compliance for record.

3.13.2 Safety Structures

The Contractor shall submit a list of safety structures to the Contracting Officer for review and approval. Safety features could include but are not limited to fencing, barriers placed around construction areas, warning signs, and placement of construction equipment at night in areas that are secured from the general public. The Contractor shall provide written notice to the Contracting Officer that the approved safety structures are in place one day after placement.

3.14 ENVIRONMENTAL PROTECTION MEASURES DURING CONSTRUCTION

The Contractor shall prepare the following Mitigation Monthly Logs by completing the forms on a daily basis and shall submit the logs to the contracting office on or before the first of each month. Each entry shall identify the necessary information required on the logs, and the signature of the Contractor and in some cases the Contracting Officer and/or Representatives thereof on a daily basis. The following is the list of Mitigation Monthly Logs required to be completed by the Contractor.

TEMPORARY TRAFFIC CONTROL ACTIVITIES
CONSTRUCTION MATERIALS DELIVERY RECORDS
SECOND-STAGE SMOG ALERT/SUSPENSION OF POWER EQUIPMENT USE
SUMMARY OF POWER SUPPLY TYPES
WIND SPEED MONITORING **
INSPECTION OF HAUL OF MATERIAL
SITE WATERING ACTIVITIES
OFF-ROAD HEAVY EQUIPMENT MAINTENANCE ACTIVITIES
CONSTRUCTION WORK WITHIN FLOOD CONTROL CHANNELS
INSPECTION OF STOCKPILED MATERIALS
STREET SWEEPING ACTIVITIES
OFF-SITE DISPOSAL LOCATIONS OF WASTE ASPHALT, CONCRETE, AND MASONRY
HAZARDOUS MATERIAL SPILL KIT INSPECTION
POWER EQUIPMENT USAGE
VIBRATORY /IMPACT PILE DRIVER USAGE
CLEANING AND RE-PAINTING ACTIVITIES (E.G., GRAFFITI REMOVAL)
HAZARDOUS MATERIALS USERS***
EXCAVATED MATERIALS SAMPLING
SUMMARY OF PERSONS EXPOSED TO HAZARDOUS MATERIALS
SUMMARY OF ENVIRONMENTAL PROGRAMS (WASTE MANAGEMENT DIV.) COORDINATION

** These logs shall be submitted on a weekly basis to the Contracting Officer.
*** These logs shall be submitted on a quarterly basis to the Contracting Officer.

3.15 MITIGATION MONTHLY LOGS

Attached is the first page of each monthly log required to be completed by the Contractor. The complete logs will consist of entries for each day of each month for the duration of the construction period as directed by the Contracting Officer. A complete log chart package shall be furnished to the Contractor after the Notice to Proceed.

-- End of Section --

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD
MITIGATION MONITORING MONTHLY LOGS
TEMPORARY TRAFFIC CONTROL ACTIVITIES (AQ-2)

Mo._____ Yr._____	TIME	TEMPORARY TRAFFIC CONTROL ACTIVITIES IMPLEMENTED	LOCATION	REASON REQUIRED	CONTRACTOR SIGNATURE
1					
2					
3					
4					
5					
COMMENTS					

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD MITIGATION MONITORING MONTHLY LOGS

CONSTRUCTION MATERIALS DELIVERY RECORDS (AQ-3)

Mo._____ Yr._____	TIME	CONSTRUCTION MATERIALS DELIVERED	LOCATION DELIVERED	NUMBER OF DELIVERIES	CONTRACTOR SIGNATURE
1					
2					
3					
4					
5					
COMMENTS					

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD
MITIGATION MONITORING MONTHLY LOGS
SECOND-STAGE SMOG ALERTS/SUSPENSION OF POWER EQUIPMENT USE (AQ-6)

Mo._____ Yr._____	2ND-STAGE SMOG ALERT CALLED?	TYPE OF EQUIPMENT WHERE USE SUSPENDED	LOCATION	CONTRACTOR SIGNATURE
1				
2				
3				
4				
5				
COMMENTS				

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD
MITIGATION MONITORING MONTHLY LOGS
SUMMARY OF POWER SUPPLY TYPES (AQ-7)

Mo._____ Yr._____	TYPE OF POWER SUPPLY USED	LOCATION	REASON REQUIRED	CONTRACTOR SIGNATURE
1				
2				
3				
4				
5				
COMMENTS				

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD MITIGATION MONITORING MONTHLY LOGS

WIND SPEED MONITORING (AQ-9)

Mo._____ Yr._____	WIND SPEED		TIME		CONSTRUCTION ACTIVITIES SUSPENDED	CONTRACTOR SIGNATURE
1						
2						
3						
4						
5						
COMMENTS						

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD MITIGATION MONITORING MONTHLY LOGS

DIRT AND SEDIMENT HAUL TRUCK INSPECTIONS (AQ-10)

Mo._____ Yr._____	TIME		LOCATION		INSPECTION OF DIRT AND SEDIMENT HAUL TRUCKS	CONTRACTOR SIGNATURE
1						
2						
3						
4						
5						
COMMENTS						

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD
MITIGATION MONITORING MONTHLY LOGS
SITE WATERING ACTIVITIES (AQ-11/WQ-5)

Mo._____ Yr._____	TIME OF WATERING	LOCATION	CONTRACTOR SIGNATURE
1			
2			
3			
4			
5			
COMMENTS			

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD
MITIGATION MONITORING MONTHLY LOGS
OFF-ROAD HEAVY EQUIPMENT MAINTENANCE ACTIVITIES (AQ-EIS-1)

Mo._____ Yr._____	TIME	MAINTENANCE ACTIVITY	LOCATION	CONTRACTOR SIGNATURE
1				
2				
3				
4				
5				
COMMENTS				

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD
MITIGATION MONITORING MONTHLY LOGS
CONSTRUCTION WORK WITHIN FLOOD CONTROL CHANNEL (WQ-1)

Mo._____ Yr._____	WORK HOURS	LOCATION OF WORK WITHIN THE FLOOD CONTROL CHANNEL	CONSTRUCTION WORK WITHIN THE FLOOD CONTROL CHANNEL	FLOW CONDITIONS IN THE FLOOD CONTROL CHANNEL	CONTRACTOR SIGNATURE
1					
2					
3					
4					
5					
COMMENTS					

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD
MITIGATION MONITORING MONTHLY LOGS
INSPECTION OF BULK GRANULAR MATERIALS (WQ-4)

Mo._____ Yr._____	TIME	TYPE OF MATERIAL STOCKPILE (APPROXIMATE QUANTITY AND LOCATION)	CONDITION OF STOCKPILE (COVERED/DUST EMISSIONS?)	CONTRACTOR SIGNATURE
1				
2				
3				
4				
5				
COMMENTS				

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD MITIGATION MONITORING MONTHLY LOGS

Mo._____ Yr._____	TIME	STREET SWEEPING ACTIVITIES (ADJACENT STREET LOCATIONS)	CONTRACTOR SIGNATURE
1			
2			
3			
4			
5			
COMMENTS			

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD MITIGATION MONITORING MONTHLY LOGS

DISPOSAL LOCATIONS FOR ASPHALT, CONCRETE, AND MASONRY (WQ-7)

Mo._____ Yr._____	MATERIAL TYPE	DISPOSAL SITE LOCATION	CONTRACTOR SIGNATURE
1			
2			
3			
4			
5			
COMMENTS			

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD MITIGATION MONITORING MONTHLY LOGS

HAZARDOUS MATERIAL SPILL KIT INSPECTION (WQ-9)

Mo._____ Yr._____	TIME	LOCATION OF SPILL KITS (LIST ALL CONSTRUCTION SITE AREAS)	CONTRACTOR SIGNATURE
1			
2			
3			
4			
5			
COMMENTS			

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD
MITIGATION MONITORING MONTHLY LOGS
POWER EQUIPMENT USAGE (NOI-4)

Mo._____ Yr._____	TYPES OF POWER EQUIPMENT USED	LOCATION	CONTRACTOR SIGNATURE
1			
2			
3			
4			
5			
COMMENTS			

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD MITIGATION MONITORING MONTHLY LOGS

VIBRATORY/IMPACT PILE DRIVER USAGE (NOI-10)

Mo._____ Yr._____	NUMBER AND TYPES OF PILE DRIVERS USED	LOCATION	CONTRACTOR SIGNATURE
1			
2			
3			
4			
5			
COMMENTS			

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD
MITIGATION MONITORING MONTHLY LOGS
CLEANING AND RE-PAINTING ACTIVITIES (AES-2)

Mo._____ Yr._____	DATE & TIME CLEANED & REPAINTED	LOCATION AND SIZE OF REPAINTING OF SURFACE	CONTRACTOR SIGNATURE	INSPECTOR SIGNATURE
1				
2				
3				
4				
5				
COMMENTS				

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD MITIGATION MONITORING MONTHLY LOGS

LOG OF HAZARDOUS MATERIALS USERS (HAZ-2)

Mo._____ Yr._____	USERS NAME	TYPE OF HAZARDOUS MATERIAL USED	CONTRACTOR SIGNATURE
1			
2			
3			
4			
5			
COMMENTS			

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD MITIGATION MONITORING MONTHLY LOGS

REPORTS ON EXCAVATED MATERIAL SAMPLING (HAZ-6)

Mo._____ Yr._____	TYPE OF EXCAVATED MATERIALS	LOCATION OF SAMPLING	CONTRACTOR SIGNATURE
1			
2			
3			
4			
5			
COMMENTS			

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD
MITIGATION MONITORING MONTHLY LOGS
SUMMARY OF PERSONS EXPOSED TO HAZARDOUS MATERIALS (HAZ-7)

Mo._____ Yr._____	NAME OF EXPOSED PERSON	TYPE OF HAZARDOUS MATERIAL	CONTRACTOR SIGNATURE
1			
2			
3			
4			
5			
COMMENTS			

LACDA - WHITTIER NARROWS DAM TO FIRESTONE BOULEVARD MITIGATION MONITORING MONTHLY LOGS

SUMMARY OF ENVIRONMENTAL PROGRAMS (WASTE MANAGEMENT) COORDINATION (HAZ-8)

Mo._____ Yr._____	TIME	CONTACT NAME	EXPLANATION OF COORDINATION	CONTRACTOR SIGNATURE
1				
2				
3				
4				
5				
COMMENTS				

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SECTION 01451
CONTRACTOR QUALITY CONTROL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740 (1994a) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

ASTM E 329 (1993b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause entitled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with quality requirements specified in the contract. The project superintendent in this context shall mean the individual with the responsibility for the overall management of the project including quality and production.

3.2 ADDITIONAL CONSTRUCTION HEADING AND CONTRACTOR PERSONNEL

Contractor’s attention is directed to the magnitude and complexity of the project and the necessity to complete the project within a limited amount of time. In order to assure completion of the project within the contract duration in accordance with the project plans and specifications, the following construction headings and additional contractor personnel are required:

Headings

Firestone Boulevard(upstream to Santa Ana Freeway)
Santa Ana Freeway(upstream to Whittier Narrows Dam)

Additional Personnel

Project Superintendent(total of two for the project)
Contractor Quality Control Manager(total of two for the project)

3.3 QUALITY CONTROL PLAN

3.3.1 General

The Contractor shall furnish for review by the Government, not later than 30 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause entitled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, test, records, and forms to be used. The Government will consider an interim plan for the first 15 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.3.2 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.

b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters will also be furnished to the Government.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with SECTION: SUBMITTAL PROCEDURES.

e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the Contracting Officer.)

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures will establish verification that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.

i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks and has separate control requirements. It could be identified by different trades or disciplines, or it could be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable feature under a particular section. This list will be agreed upon during the coordination meeting.

3.3.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.3.4 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.4 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 14 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.5 QUALITY CONTROL ORGANIZATION

3.5.1 General

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure contract compliance. The Contractor shall provide a CQC organization which shall be at the site at all times during progress of the work and with complete authority to take any action necessary to ensure compliance with the contract. All CQC staff members shall be subject to acceptance by the Contracting Officer.

3.5.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within his organization at the site of the work who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a construction person with a minimum of 3 years in related work. This CQC System Manager shall be on the site at all times during construction and will be employed by the prime Contractor. The CQC System Manager shall be assigned no other duties. An alternate for the CQC System Manager will be identified

in the plan to serve in the event of the System Manager's absence. The requirements for the alternate will be the same as for the designated CQC System Manager.

3.5.3 Organizational Changes

The Contractor shall maintain his CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5.4 Additional Requirement.

In addition to the requirements described above, the CQC System Manager shall have completed the course entitled "Construction Quality Management for Contractors". This course is offered periodically. Contact U.S. Army Corps of Engineers, Los Angeles District, Phil Strayhorn, (213) 452-3374 for information.

3.6 SUBMITTALS

Submittals shall be made as specified in SECTION 01330: SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals are in compliance with the contract requirements.

3.7 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

3.7.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

a. A review of each paragraph of applicable specifications.

b. A review of the contract drawings.

c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

d. Review of provisions that have been made to provide required control inspection and testing.

e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

g. A review of the appropriate activity hazard analysis to assure safety requirements are met.

h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

j. Discussion of the initial control phase.

k. The Government shall be notified at least 24 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.7.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.7.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon or conceal non-conforming work.

3.7.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable CQC staff, onsite production supervision or work crew, if

work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

3.8 TESTS

3.8.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

a. Verify that testing procedures comply with contract requirements.

b. Verify that facilities and testing equipment are available and comply with testing standards.

c. Check test instrument calibration data against certified standards.

d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

e. Results of all tests taken, both passing and failing tests, will be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test will be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility will be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.8.2 Testing Laboratories

3.8.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.8.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of $675.00 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.8.3 On-Site Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.9 COMPLETION INSPECTION

3.9.1 Punch-Out Inspection

Near the completion of all work or any increment thereof established by a completion time stated in the Special Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the CQC System Manager shall conduct an inspection of the work and develop a "punch list" of items which do not conform to the approved drawings and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph DOCUMENTATION below, and shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished the Contractor shall notify the Government that the facility is ready for the Government "Pre-Final" inspection.

3.9.2 Pre-Final Inspection

The Government will perform this inspection to verify that the facility is complete and ready to be occupied. A Government "Pre-Final Punch List" may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected and so notify the Government so that a "Final" inspection with the customer can be scheduled. Any items noted on the "Pre-Final" inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph will be accomplished within the time slated for completion of the entire work or any particular increment thereof if the project is divided into increments by separate completion dates.

3.9.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, his superintendent or other primary management person and the contracting Officer's representative will be in attendance at this inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice will be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and must include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause entitled "Inspection of Construction".

3.10 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

a. Contractor/subcontractor and their area of responsibility.

b. Operating plant/equipment with hours worked, idle, or down for repair.

c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase should be identified

(Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.

e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

f. Submittals reviewed, with contract reference, by whom, and action taken.

g. Off-site surveillance activities, including actions taken.

h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

i. Instructions given/received and conflicts in plans and/or specifications.

j. Contractor's verification statement.

k. These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date(s) covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every seven days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.11 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the worksite, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

3.12 CONTRACTOR PROJECT MANAGEMENT SYSTEM.

3.12.1 General.

3.12.1.1 The Contractor Project Management System is included to assure adequate planning and execution of the work, to assist the Contracting Officer on appraising the reasonableness of the schedule, to evaluate progress of the work, and make progress payments, and to make decisions relative to time and/or cost adjustments which may result from changes in the work.

3.12.1.2 The management system is to be based on a computerized Network Analysis (Critical Path Method) operated by on-site personnel at terminals located in the Contractors's on-site office. On-site management shall be capable of using the system to address all project activities and resources on a real time interactive basis and be capable of rapidly evaluating alternative scenarios which will optimize project management. Evidence of technical expertise of on-site personnel with the proposed computerized Network Analysis System shall be submitted for Contracting Officer's approval prior to on-site work.

3.12.1.3 The Contractor shall resource load all work activities. As a minimum, resource loading shall identify equipment, management, skilled and unskilled labor requirements. The Contractor may at his option decide on greater detail for his own purposes, but if this option is elected, the system must be able to consolidate resources into the above defined categories for use by the Contracting Officer.

3.12.1.4 The Contractor shall incorporate any and all milestone and contract required events which may be specified elsewhere within these specifications. Should milestone events be not specifically identified by the Government within these specifications, the Contractor shall identify at least five percent of the network activities and designate them as milestone activities.

3.12.1.5 The Contractor Project Management System is to be staffed and prepared pursuant of CONTRACT CLAUSE: SCHEDULE FOR CONSTRUCTION CONTRACTS, and CONTRACT CLAUSE: SUPERINTENDENT BY THE CONTRACTOR. In preparing this system the Contractor assume responsibility for conformance with contract requirements, planning, sequencing of work, and determining the construction means and methods.

3.12.2 Submission and Approval. Submission and approval of the system shall be as follows:

3.12.2.1 The complete network system consisting of the detailed network mathematical analysis (including on-site manpower loading schedule) and network logic diagrams shall be submitted for approval within thirty (30) calendar days after receipt of Notice to Proceed. This shall be submitted in assembled hardcopy paper format and via 3-1/2 HD (High Density) floppy disk to allow restoring on Government Computers in accordance with the Corps of Engineers Standard Data Exchange Format as described in ER 1-1-11.

3.12.2.2 The Contractor shall participate in a review and evaluation of the proposed network logic diagrams and mathematical analysis by the Contracting Officer. Any revisions necessary as a result of this review shall be resubmitted for approval of the Contracting Officer within three (3) calendar days after the conference. The approved schedule shall be used by the Contractor for planning, organizing and directing the work, reporting progress, and requesting payment for work accomplished.

3.12.3 Network Modifications.

3.12.3.1 In those cases where the contract performance is delayed due to causes beyond the control of the Contractor, and a time extension may be allowable under one or more of the CONTRACT CLAUSES: CHANGES, or DIFFERING SITE CONDITIONS, or DEFAULT (FIXED PRICE CONSTRUCTION), or SUSPENSION OF WORK, or other applicable clauses, as a condition recedent to granting a time extension, the Contractor shall submit a time proposal in such format as to identify the specific subnet diagram and activities affected.

3.12.3.2 Change order proposals shall include description or listing of all proposed changes to the network, by activity, and demonstrate the effect on the contract required completion date. A complete list of activities changed and subnet of activities affected by the change shall be submitted.

3.12.3.3 Float or slack is defined as the amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any of the activities in the NAS schedule. Float or slack is not time for the exclusive use or benefit of either the Government or the Contractor. Extensions of time for performance may be granted to the extent that equitable time adjustment for the activities affected exceed the total float or where otherwise justified, effect on contract completion can be shown. The contract completion date is fixed, and will be amended only if the modifications which include time are signed by the Contracting Officer.

3.12.3.4 Rapid resolution of change orders and the granting of other time extensions where authorized by the Contracting Officer is a critical part of the overall management system. Implementation of all justified activity and logic changes shall be made and reflected on the next monthly update after approval of the Contracting Officer.

3.12.3.5 If, in the opinion of the Contracting Officer, the current schedule no longer accurately reflects the Contractor's real plan for accomplishing the work, or no longer reflects a viable way of finishing the work on schedule, the Contractor shall be directed to revise the schedule and submit it for approval within seven (7) calendar days of direction.

3.12.4 Logic Diagrams and Reports.

3.12.4.1 Logic diagrams.

3.12.4.1.1 Logic diagrams shall show the order and interdependency of activities and sequence in which the work is to be accomplished as planned by the Contractor.

3.12.4.1.2 Detailed networks need not be timed scaled, but drafted to have a continuous flow from left to right, showing how the start of a given activity is dependent on the completion of preceding activities, and how its completion restricts the start of the following activities.

3.12.4.1.3 An assembled logic diagram of the complete project shall be submitted with the initial NAS, showing each activity's identifying numbers, duration and description, with the critical path easily identified. Updated assembled diagrams will be provided as required by logic changes (but not more frequently than the monthly update). The logic diagram shall be plotted on architectural size E paper.

3.12.4.1.4 In addition to the detailed schedule, a summary schedule shall be developed by the Contractor. The summary schedule shall consist of minimum thirty (30) activities and maximum of 100 activities, and be updated monthly.

3.12.4.2 Reports.

3.12.4.2.1 After the network approval, the Contractor shall review and evaluate the actual progress with the Contracting Officer's representative on a weekly basis, and submit any updated weekly reports three (3) workdays after the meeting.

3.12.4.2.2 Three (3) weekly reports, selected from specific items of the menu will be required, for specified time window of the project (such as the next two weeks). These reports must be flexible in format, allowing generation of reports relating specifically to critical work areas, or areas of particular interest. The Government will identify the subject of the requested reports for the following week at a weekly review meeting. All activities involving the Government that affect progress will be coded to allow a separate report.

3.12.4.2.3 Monthly update reports will be submitted at midmonth showing status and actual start and finish dates of project activities, and will be capable of comparing the current status with the approved base schedule. Each monthly update report shall be uniquely identified and shall be stored on the Contractor's computer until the final pay estimate is processed. The content of the monthly update shall be flexible to show items listed in the menu. The midmonth report shall be used for partial payments.

3.12.4.2.4 A meeting shall be held three (3) workdays before the delivery of the midmonth report to discuss all input data. If the Contractor desires to make changes in his method of operation and scheduling, he shall clearly present the proposed changes.

3.12.4.2.5 A narrative report shall be submitted with midmonth report indicating current and anticipated problems, delaying factors, and conditions that are impacting the Contractor's work effort. An analysis showing the reasons for the delay/gain and their impact upon the current schedule shall be included. When it is apparent the scheduled milestone(s) and completion date(s) will not be met, the Contractor shall propose specific methods he intends to implement to bring the project back on schedule at no cost to the Government. Such measure may include but are not limited to:

a. Increasing construction manpower in such quantities and crafts as will substantially eliminate the backlog of work effort.

b. Increasing the number of working hours per shift; shifts per workday; workdays per week; the amount of construction equipment; or any combination thereof.

c. Rescheduling of activities to achieve maximum practical concurrence of work shifts.

3.12.4.2.6 The Contractor shall implement such procedures as may be necessary for the active participation by his subcontractors in preparing and updating the schedule. Subcontractors shall be provided with schedules which identify the interfaces of their work with the work of others. At minimum, the Contractor shall provide bar graphs to each major subcontractor showing activity times with plots on an Early Start basis. Copies of these schedules shall also be provided to the Contracting Officer. The relationship between subcontractor and interdependency or work shall be managed by the Contractor. When these interdependencies are violated or impaired, the Contractor shall identify the problem, resolve it, and provide the information to the Contracting Officer as part of the monthly report.

3.12.5 Payment Requests.

3.12.5.1 The monthly update report shall be used as a basis for the monthly partial pay estimate. The report will state the cost, actual percent complete, and current value of partially completed or completed work. Subtotals from subnets representing separate areas of construction will be given, along with a grand dollar value of work completed for the project.

3.12.5.2 The first payment shall not be made until the Network Analysis Schedule has been approved by the Contracting Officer. If, in the judgment of the Contracting Officer, The Contractor fails or refuses to provide an approved schedule and other progress or input data specified, the Contractor shall be deemed not to have provided the required information upon which progress payments may be made, and no payment request will be honored.

3.12.5.3 Activities submitted for payment shall be based on the approved network activities and monetary amount. No payment shall be made for activities conducted in deviation of the approved logic.

3.12.5.4 Payment for activities conducted when previously dependent activities have not been completed or accepted due to quality defects shall be restricted at the discretion of the Contracting Officer, and may be the basis for a resubmittal of the logic diagram.

3.13 IMPLEMENTATION OF GOVERNMENT RESIDENT MANAGEMENT SYSTEM FOR CONTRACTOR QUALITY CONTROL OF CONTRACT

The contractor shall utilize a Government furnished CQC Programming Module (A computerized executable file which is DOS based and operates on a minimum of 80386 IBM compatible computers). The contractor must use the CQC module and provide updates from this module on electronic format. The Module includes a Daily CQC Reporting System form which must also be used. This form may be in addition to other

Contractor desired reporting forms. However, all other such reporting forms shall be consolidated into this one Government specified Daily CQC Report Form. The Contractor will also be required to complete Government-Furnished Module elements which includes, but is not limited to Prime Contractor staffing; letter codes; planned cumulative progress earnings; subcontractor information showing trade, name, address, point-of-contact, and insurance expiration dates; definable features of work; pay activity and activity information; required Quality Control tests tied to individual activities; planned User Schooling tied to specific specification paragraphs and contractor activities; Installed Property Listing, Transfer Property Listing and submittal information relating to specification section, description, activity number, review period and expected procurement period. The sum of all activity values shall equal the contract amount, and all Bid Items, Options and Additives shall be separately identified, in accordance with the "Bidding Schedule". Bid Items may include multiple Activities, but Activities may only be assigned to one such Bid Item. This Module shall be completed to the satisfaction of the Contracting Officer prior to any contract payment (except for Bonds, Insurance and/or Mobilization, as approved by the Contracting Officer) and shall be updated as required.

(1) During the course of the contract, the Contractor will receive various Quality Assurance comments from the Government that will reflect corrections needed to Contractor activities or reflect outstanding or future items needing the attention of the Contractor. The Contractor will acknowledge receipt of these comments by specific number reference on his Daily CQC Report, and will also reflect on his Daily CQC Report when these items are specifically completed or corrected to permit Government verification.

(2) The Contractor's schedule system shall include, as specific and separate activities, all Preparatory Phase Meetings (inspections); all O&M Manuals; and all Test Plans of Electrical and Mechanical Equipment or Systems that require validation testing or instructions to Government representatives.

(3) The Contracting Officer can provide information regarding training on the use of the RMS system.

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SECTION 01500

QUALITY ASSURANCE VEHICLES

PART 1 GENERAL

1.1 QUALITY ASSURANCE VEHICLES

The Contractor shall furnish vehicles for use by Government personnel during the contract period. The vehicles shall be new 4 door model Chevrolet mini-Blazers, or equal, 4x4, equipped with high floatation all terrain tires, automatic transmission, air conditioning, AM/FM radio, heavy duty suspension, and other appropriate options for use in heavy duty off road conditions. One vehicle shall be a 9 passenger model suburban, or equal. The vehicles shall be suitable for the intended purpose and shall remain the property of the Contractor and be removed from the site at the completion of the contract.

1.1.1 Delivery

The Contractor shall deliver the vehicles within thirty (30) days after receipt of the Notice to Proceed.

1.1.2 Licenses and Fees

The Contractor shall be responsible for all vehicles registration fees, licenses, and inspections required by the State of California throughout the contract period. The vehicles shall be licensed for highway use.

1.1.3 Maintenance

Upon delivery of the vehicles, and continuing throughout the duration of the contract, complete maintenance shall be provided for the Contractor-furnished vehicles. Quality of services shall be to the normal standards of commercial service stations. Servicing and/or repairs of vehicles shall be started when the vehicle is received at the Contractor's service area and completed with reasonable promptness. Maintenance shall consist of the regular furnishing of gas and oil in the vehicle, washing, steam cleaning, lubrication consisting of 2,000-mile lube, 4,000-mile oil and filter change, or more if recommended by the vehicle manufacturer, tire services and any major or minor repair of body or fenders, transmission, rear-end, engine, brakes, steering, front-end, radiator, etc. All necessary parts and supplies, and consumables shall be Contractor-furnished. The vehicles shall be washed and the interior of all vehicles shall be cleaned every week and the motor and undercarriage shall be steam cleaned as directed. Whenever gas or oil is furnished, windshields shall be washed, tires inflated to proper pressure, brake fluid level checked and filled if necessary, and the battery filled to proper levels. Gasoline and oil shall be of the quality recommended by the vehicle manufacturer. The Contractor may elect to contract with a local commercial service station and/or service garage in the immediate local vicinity of the river to provide these maintenance services, so long as all of the above required services can be provided. If more than 2 of the Contractor-furnished vehicles are being serviced at any particular time, the Contractor shall immediately provide a replacement vehicle of equal quality as a replacement.

1.1.4 Storage of Vehicles

Open parking space for quality assurance vehicles shall be located convenient to the project engineer’s office specified in 01200-4. The parking area shall be enclosed with a chain link fence approximately 6 feet high with a 10-foot wide lockable gate, accessible at all times. The fenced area shall be of sufficient size to permit ease

in the parking of vehicles. Materials for fence and gate need not be new provided they are adequate for the intended use.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

-- End of Section --